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FLAVOR IN FOODS[1]

BETTY M. WATTS

IN THE few years which I have spent in food study, I have become increasingly impressed with the importance and the illusiveness of the quality which we call flavor in foods. I have made a habit of collecting published items of a scientific or semiscientific nature which have to do with the physiology and chemistry of flavor. These items, when fitted together, seem to me to constitute a fairly representative picture of nonnutritional food research, since, even when flavor improvement is not the primary object of an experiment, the effect of the experimental conditions on flavor is an almost inevitable part of the record.

The general aspects of the physiology and chemistry of flavor have been discussed by Parker (1) and by Crocker in a much more recent series of articles (2–6). Physiologically it seems clear that not only taste and smell but also touch ("mouthfeel"), temperature, and even pain contribute to the complex which we know as flavor or palatability in foods. The so-called mouthfeel of food is of course dependent on its texture and consistency, qualities which can in many cases be measured objectively. We are all familiar, at least by reputation, with the measuring devices—viscosimeters, penetrometers, jellmeters, shortometers, and the rest—which are contributing so much toward the quantitative evaluation of quality in foods. No radically new device of this kind has come to my attention within the past year. In any case, time necessitates limitation of my subject to components affecting taste and smell.

Taste, in its main analysis at least, is comparatively simple. It comprises four separate sensations (sour, salty, sweet, and bitter), each with its own sensory end organs and its own chemical stimuli. The end organs for sour taste are distributed mainly at the sides of the tongue and are apparently stimulated only by hydrogen ions. All acid substances are sour. Saltiness is also perceived mainly by the sides of the tongue, but its stimuli appear to be mainly inorganic anions (chlorides, bromides, iodides, sulfates, and nitrates). Sweet taste buds, concentrated at the tip of the tongue, respond not only to different sugars in varying degree but also to several totally unrelated chemical compounds, such as saccharin (about 500 times as sweet as cane sugar) and lead acetate. Bitter taste is located at the back of the tongue and is stimulated by a wide variety of chemical compounds, including alkaloids, tannins, glucosides, and a number of inorganic cations, such as potassium, magnesium, and calcium.

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It seems probable that the full taste of any food material, no matter how complicated the food, can be satisfactorily duplicated by mixing, in the proper concentrations, representative solutions of the four primary taste sensations. For example, Crocker and Henderson (6) report that the typical meaty taste, in which bitterness and saltiness predominate, could be simulated by magnesium sulfate plus a trace of tartaric acid. Crocker warns, however, that this duplication applies only to taste, that is, that a spoonful of epsom salts and a trace of grape juice are not the flavor equivalent of a juicy steak.

By far the most important (and least understood) component of flavor is smell. The part of the nasal passage which is able to detect odors is located in a special, rather inaccessible pocket high up in the nose, just beneath and behind the eyes. The whole sensitive zone is not much more than a square centimeter in area. Obviously, in order to reach this zone chemicals must be in some degree volatile at body temperature.

The quantity of material required to give a detectable odor is infinitesimally small as compared with the concentrations required to give a recognizable taste. Roughly, the limit for a taste of the most powerful stimulus known (saccharin) is not far from 0.01 mg. The smallest concentration of vanillin which can be smelled contains about 2×10^{-10} mg. vanillin per liter of air; and since only about 100 cc. of air need be sniffed for odor discernment, the amount of vanillin per sniff is about 2×10^{-11} mg.

Attempts have been made to analyze the odor complex into a few fundamental sensations, corresponding to the four primary tastes. The most recent of these, suggested by Crocker and Henderson (2) postulates four fundamental odors: fragrant, acid, burnt, and caprylic. Fragrant is a sweet odor, prominent in most flowers, in musk, and to a lesser extent in vanillin, cinnamon, etc. Acid is the sensation which contributes sharpness to an odor. Burnt occurs in all tarry, scorched, or browned materials. It contributes a large part to the odor complex of coffee, maple, walnut, and chocolate flavors. Caprylic or goaty is an odor generally considered unpleasant. It is strong in animal perspiration, products of putrification, and rancid fats and greases. Whether or not this classification is adequate or fundamentally correct is difficult to say. Admittedly it does not rest on so firm an experimental foundation as the taste classification. The inaccessibility of the sensitive zone makes experimentation difficult.

Flavoring preparations themselves are only of secondary interest, although it is probably in this field that the organic chemist has put forth his greatest efforts. I will mention only a few recent items concerned with the use of flavoring extracts in bakery products.

Gilmer, Kinder, and Bohn (7) point out the marked effect of pH on the retention of most of our common flavoring materials (vanillas, lemon, orange, etc.) in baking. Some loss of flavor, of course, results from volatilization in any baked product. But it appears that in commercial sweet goods (shortbreads and arrowroot biscuits, for example) baked at pH values above 7, these flavors are completely destroyed. At pH values below 6.5 they are well retained, while an increasing loss occurs between 6.5 and 7.0. Since the excess soda is essential for the characteristic texture, the only recommendation seems to be to refrain from wasting flavoring materials on such products. Luckily the vast majority of cake mixes are well below 6.5.

Dunn (8) points out the danger of "bakery taste" in commercial baked products. Various kinds of baked items made in commercial bakeries, even from the best of raw materials, tend to lose their characteristic flavors and to take on an uninteresting sameness because so many

different flavors are used in the bakery that the atmosphere becomes contaminated with conflicting aromas of chocolate, vanilla, spices, fried doughnuts, and what not. These aromas are quickly absorbed by delicately flavored baked goods, and as a result such products as icings and whipped cream take on bakery taste. Obvious remedies are the best ventilation possible, a quick turnover, a separate room for deep-fat frying operations.

Of more fundamental interest than flavoring preparations are the factors contributing to the natural flavor in our commonest foods, such as bread, butter, milk, meat.

The steadily decreasing consumption of bread has stimulated the cereal chemist to ever greater efforts to analyze and improve bread flavor.

Pelshenke (9), director of the bakery institute in Berlin, has recently discussed various factors affecting the flavor of bread. The two main sources of flavor are undoubtedly by-products of yeast fermentation and the roasted crust. Pelshenke points out that the typical American loaf of white bread is less flavorful than, for example, Viennese or Hungarian bread, a difference due partly to the tendency to shorten the fermentation time and partly to differences in baking temperatures which tend to skimp the crust.

Apparently it is no easy matter to find out exactly what the American public prefers in bread flavor. King, Coleman, and LeClerc (10) in a consumer preference test on breads of varying degrees of freshness and made with different classes of wheats, grades of flour, bleaches, methods of mixing, fermentation, baking temperatures, and types of formula, found that their judges decidedly preferred a fresh bread and one made with a rich rather than a lean formula; but the smaller differences due to other variables seemed to be indistinguishable by many of the judges.

Hooft and DeLeeuw (11) have recently identified the product of yeast fermentation which they believe contributes most largely to the aroma of bread. Interestingly, this compound (diacetyl) is the same as that previously identified as being mainly responsible for the aroma of butter (12). In fact, Hooft was led to undertake this research because of the similarity between the aroma of fresh bread and that of butter. The diacetyl in bread is formed from the gradual oxidation of acetyl methyl carbinol formed as a by-product of yeast fermentation of sugar. Acetyl methyl carbinol is itself odorless and has a high boiling point (140° to 144° C.); it is not lost during the baking. It may either be reduced to the equally odorless butylene glycol or oxidized to diacetyl, which has a low boiling point (86° to 90° C.) and a marked odor. Either of these reactions may occur in the dough, depending on the presence or absence of oxidizing agents, the kind of yeast, the sugar-yeast ratio, and a number of other variables. The acetyl methyl carbinol which is reduced to butylene glycol is lost for flavoring purposes. That which is oxidized to diacetyl in the dough stage is probably also largely lost during the baking —contributing to the aroma of the bakery but not to that of the finished bread. Ideally, then, the most flavorful bread should be that containing the largest amounts of acetyl methyl carbinol after baking, since this is converted slowly into diacetyl as the bread stands; and in fact these authors established a relationship between flavor and the acetyl methyl carbinol content of finished bread.

Bailey and LeClerc (13) have made bread without yeast, using as their leavening agent a solution of hydrogen peroxide which they added during the mixing of the dough. The leavening gas, oxygen, was given off gradually over a period of from 12 to 16 hours. When all the hydrogen peroxide was decomposed the bread was baked. Loaves of excellent volume and

texture were obtained, but, as might be expected, flavor and aroma were distinctly inferior. When part of the flour was replaced by cheese, a more interesting bread resulted. Buttermilk was not tried; but, theoretically, it should be better than cheese if acetyl methyl carbinol is the compound responsible for flavor in bread.

Bread has also been made with yeast but without crust. Baker and Mize (14) secured crustless loaves by the ingenious device of putting the dough between electrodes carrying alternating current, thus heating the dough evenly rather than concentrating the heat on the outside as in oven baking. The flavor was mild and dominated by the products of yeast fermentation, alcohol, and diacetyl. This bread did not develop stale flavor on standing. Presumably the flavor products which are involved in staling are those derived from the caramelized crust. Crust aroma undoubtedly penetrates the entire loaf of bread, modifying the crumb.

Countless references to the preparation of special types of breadstuffs fill the baking journals. Of these, the most interesting was a full description in the January 1939 issue of *Bakers Technical Digest* (15) of a new wheat-germ flour prepared by a special milling process in which the germ is retained and milled with the endosperm, not separated and then reincorporated as in the usual preparation of such flours. The resulting flour is low in fiber, high in water absorption, bakes bread of good quality and excellent wheaty flavor and aroma. Most important, the flour does not turn rancid, as have all such flours in the past; in fact, it appears to keep better than white patents from the same wheat. If this flour lives up to expectations we may see a radical change in milling technique and a replacement of our present white bread with a wheat-germ bread of better quality than has been possible heretofore. All of us would undoubtedly endorse such a change from a nutritional as well as from a flavor standpoint.

Excellent progress has been made also in the prevention of rancidity in foods other than flour. When we speak of rancidity in any type of fat except milk fat, we mean the development of a peculiarly disagreeable odor, due mainly to the oxidative decomposition of long-chain, unsaturated fatty acids, resulting in short-chain acids, aldehydes, and other substances which are volatile and odorous.

Oil chemists have long recognized the existence of compounds which would delay the onset of oxidative rancidity. Unfortunately, until very recently the effective antioxidants were for the most part substances which could not be added to foods, either because they were toxic or because they added an undesirable color or odor to the food. Jamieson (16) listed the antioxidants available in 1932 as aromatic amines and nitro derivatives, creosote, guaicol, arsenic, and antimony sulfides.

In 1937, Peters and Musher (17) described the antioxygenic properties of cereal flours, particularly oat flour. Not only did oat flour greatly retard rancidity in fats and fatty foods, but it was, of course, also edible, bland in flavor, and neutral in color. This discovery was patented by the Quaker Oats Company, which now sells a special ground oats product called Avenex for this purpose. The company is also experimenting with a hexane extract of oat flour called Avenol.

Research workers in every branch of food preparation in which rancidity is a problem have been quick to try out the new product. Wherever it has been tried, it has apparently been successful in retarding rancidity; in some cases the amount of retardation has been quite remarkable. Lowen, Anderson, and Harrison (18) found it effective in retarding oxidation and off-flavors in fish-liver oils. Conn and Asnis

(19) increased the keeping qualities of potato chips by sprinkling the flour over the chips while still hot. They also described the preparation of parchment paper wrappings, wax paper, etc., containing a certain proportion of Avenex which could be used to prevent the development of surface rancidity in all types of packaged foods, particularly those such as lard and butter which come into intimate contact with the wrapper. Bull (20) retarded rancidity in bacon and other pork products by using 10 per cent Avenex in the curing mixture, also less efficiently by using the specially prepared wrappers. Triebold (21) improved the keeping qualities of crackers by spraying them with Avenol. Dahle and co-workers (22, 23) found that the addition of a water extract of oat flour to cream to be used for butter-making gave ample protection to the butter over two months' storage. It not only prevented oxidation of the butterfat but also retarded the development of oxidative off-flavors such as staleness and cheesiness.

The possibilities are by no means exhausted. For example, the chemical nature of the compound present in oat flour responsible for its antioxygenic properties has not as yet been determined. It is quite possible that a much greater degree of protection could be secured by using a more active fraction of the flour.

Turning now to the dairy industry, it is apparent from even a superficial review of the recent literature that flavor, particularly the eradication of undesirable flavor, occupies a very important place. Milk itself has no very pronounced flavor other than a very faint nutty aroma coupled with a slightly sweet taste.

During the manufacture of butter, however, a very definite aroma is developed, due to the action of a particular microorganism present in butter cultures on the small amount of citric acid normally present in milk. The compound formed is again acetyl methyl carbinol. The same organisms which cause its formation also bring about its oxidation to diacetyl, which was demonstrated to be the cause of typical butter aroma (12). When the cultured cream is churned into butter, less than 10 per cent of the diacetyl present goes into the butter; most of it remains in the buttermilk. Nevertheless, even the small fraction retained by the butter is enough to give it a distinctive flavor. Butters lacking in diacetyl are flat tasting.

Several remedies have been suggested for such butter. Synthetic diacetyl might be added directly to the butter as it is said to be now added to margarine (24). This is undesirable in several respects. In order to give the butter sufficient flavor, diacetyl must be added in concentrations greater than are normally present in naturally well-flavored butter; this suggests that constituents other than diacetyl undoubtedly contribute to the flavor of good butter. Butter flavored with diacetyl alone is artificial tasting (25). In any case, the use of diacetyl constitutes adulteration. Ruehe and Ramsey (26) surmount these difficulties by using the condensed steam distillate from a well-ripened butter culture to impart flavor to uncultured butter. Prill and Hammer (27) suggest improving the culture itself by supplementing its citric acid content, thus furnishing more raw material for the microorganisms to work on, with a conspicuous increase in diacetyl and butter aroma.

Progress in determination of the chemical characteristics of meat flavor has been disappointingly slow when compared with the real gains made with other basic foods. In discussing flavor, the best-known authorities in this field still speak rather vaguely of salts, acids, "nitrogenous extractives," "inherent flavors in the fat, characteristic of the species," etc. (28). Nowhere in the literature can I find definite answers to many simple questions

on the chemistry of meat flavor. For example, if one were to make an ether extract of raw beef and cook the portions separately, would the characteristic aroma of roast beef develop in the crude lipide or in the fat-free fraction? Would the answer be the same for pork or lamb? How much of the flavor is due to taste and how much to smell? Could the aroma be distilled?

Satorius and Child (29) have made a promising attack on some of the outstanding problems. They find that juiciness as scored by a judge is not correlated with amount of press fluid and that flavor and aroma are negatively correlated with the total amount of ether extract. But this is only a beginning. Now that we have succeeded in cooking our meat properly with the aid of inserted thermometers and low-temperature ovens and are measuring its tenderness objectively by appropriate mechanical contrivances, it is time to turn our attention to a more concrete analysis of meat flavor.

Rather interesting in this connection is the recent development by the Anheuser-Busch Company in St. Louis of a special "food yeast" to be used in soups. I was able to obtain a trial sample of this new yeast. Heated with water, it did, in fact, give a broth with a distinct chicken-like aroma and a mild meaty taste, with distinctly less of the bitterness of ordinary dried yeasts. Perhaps we shall see the development of "beef yeasts" and "lamb yeasts" as well as "chicken yeasts."

I would like to bring up one more point before closing, namely, the amount of useful information that can be obtained from our noses in all kinds of scientific work with foods. I have frequently noticed that students in my course in quantitative food analysis consider the use of their noses in analytical work as not only unscientific but even a mild form of cheating. One conscientious but inexpert analyst, after spending several weeks working on a sample of adulterated olive oil, concluded from the values which he had obtained for iodine number and refractive index that his sample was adulterated with corn oil. But in parentheses at the end of his report he said, "I really think from smelling the sample that the adulterant was lard oil. However, I know that it isn't fair to smell." His adulterant was lard oil, and it is fair to smell. This class is now instructed, as the first step in the analysis of any food, to taste and smell the sample.

The U. S. Food and Drug Administration has long recognized the importance of a discriminating sense of smell in its inspectors. In many cases, for example, in the detection of spoilage in fish, egg, and other products, no amount of chemical testing can at present be substituted for the trained noses of these inspectors. Not only is this sense of smell the quickest and most accurate general sorting agent for the government agent, but it is also the best all-round trouble shooter for the chemist in many branches of food technology. It seems to me that when we home economists "go scientific" it would be well to take our noses with us.

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THE LOCAL HOME ECONOMICS ASSOCIATION AND HEALTH AND WELFARE AGENCIES[1]

ELIZABETH GUILFORD

DURING the past decade, there has been a significant increase in the number and kind of social services available to the people of the United States. This is due partly to changes in our economic life and partly to a growing feeling of government's responsibility for the health and well-being of its citizens, particularly the less favored groups. There appears more likelihood of those services increasing than decreasing. It seems to me that professionally trained groups have a responsibility for guiding the development of social and health services in their communities and helping them to utilize professional knowledge more effectively.

The following discussion of the role of home economics in community activities is based mainly on what the social welfare and public health department of the New York City Home Economics Association has done—not because we have covered the field more completely or better than other groups but because I happen to be familiar with what has been done there. While some of our activities may not be needed in every community, some are appropriate almost anywhere.

Long before the depression there were a number of well-established private relief associations in New York City—one of them published its 95th annual report this year. They administered practically all the outdoor relief. Home economics came into the picture about thirty-three years ago and has been accepted as an integral part of new agencies organized since then. All the private family welfare agencies in New York City now have home economists or nutritionists, depending on the major emphasis in the work. Also there are home economists in the Family Welfare Division of the Department of Welfare, the two visiting nurse associations that serve the five boroughs of Greater New York, the City Department of Health, several settlement houses and voluntary health centers—a fairly large total.

The social welfare and public health department of the New York City Home Economics Association had its origin about eighteen years ago when a small group of home economists and nutritionists began to hold informal monthly meetings to discuss common problems. Gradually new members were added and the name New York Nutritionists was adopted. Three years ago it was decided that we should be identified with our own professional association, and we became the social welfare and public health department of the New York City Home Economics Association. We still maintain our own organization with monthly meetings and other activities independent of the larger group, but our chairman is a member of the executive committee of the City Association.

We try to base the programs for our monthly meetings on the needs of the group. For instance, one year's meetings were given over to a discussion of the food habits of the different national and racial groups found in New York City and the low-cost foods that meet their needs. During another year at each meeting we invited a representative from some one of the various

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social agencies working in the metropolitan area to explain its program to us. Within the past few months, one of our members learned that because the need for health information is so great, consideration was being given to the possibilities of training lay groups to give talks in neighborhood houses and other community centers on health, including nutrition. The subject "Can a Layman Be Trained to Teach Nutrition" was discussed at one of our monthly meetings by a panel in which representatives of the group sponsoring the movement to train these laymen took part. It was very definitely brought out that the dangers inherent in this procedure make it an unwise one to follow, and so far these training courses for laymen have not been started. I realize that the type of organization we have would not be possible everywhere, but even a few workers can form a discussion group or be responsible for one program each year in their local home economics association. For a number of years we have had a small nutrition discussion group within the larger one. Each member is responsible for reporting on certain journals, and the social welfare and public health abstract section in the JOURNAL is an outgrowth of this.

The need for a uniform basis for estimating food allowances that could be used by all agencies led to our forming a food committee. It has two functions. The first is to keep the kinds and quantities of foods recommended for various age groups in line with the newer knowledge of nutrition, which means that as research advances, food lists must be analyzed to be sure that they cover all known needs. The second function is to keep agencies informed about changes in the cost of foods so that relief allowances can be adjusted accordingly. To do this, a list of foods is priced three times a year, or more often if needed.

The techniques worked out for this food pricing are perhaps worth detailed explanation. Each of the five boroughs of the City of New York is divided into a number of districts according to the number of relief families from that borough registered in the Department of Public Welfare. A member of the committee is assigned to each district and collects prices from food dealers patronized by low-income families. Included are pushcarts, small independent groceries, and chain stores; but a weighting is applied to the various types of food dealers so that the prices will not be dominated by any one type. Since chain stores exist all over New York and the cost of foods is the same in a given chain, only one worker collects its prices.

After all the workers have covered their districts, the committee meets and decides what price to use for each food on the list. Sometimes it is an average of all the prices collected, and sometimes the one occurring most frequently is used. When one worker brings in a price that is out of line with the majority, it is discarded. The list of foods to be priced has been selected with great care on the basis of their nutritive value, cost, and availability in the districts where low-income families live. The list is revised as need arises. For example, prices used to be collected for only the advertised brands of bottled milk; then unadvertised brands appeared on the market at lower cost and were bought by low-income families, and after consultation with the Department of Markets they were included.

Since an increase in the cost of one food may be offset by a decrease in the cost of another, a master food order is used to compare the total cost each time prices are collected. In New York, this is for a family of five. Most social agencies change their food allowances when there is a change of 5 per cent or more in the total cost of food, providing the change appears likely to continue for a reasonable time. Price wars, on the other hand, would not call for a change.

This method of pricing provides a much more accurate basis for estimating relief

allowances than the average prices published by the Bureau of Labor Statistics because the committee's averages include only foods used by low-income families purchased in the kinds of market they patronize; while the averages from the Bureau of Labor Statistics include the more expensive foods and stores.

The list of average food prices is available at 25 cents a year to agencies not represented on the committee. The subscription list includes hospital food clinics, neighborhood houses, colleges, and individuals.

Members of the committee feel that the food pricing is worth the work they put into it because, in addition to the service it provides for their agencies and the community, it also keeps them informed about current prices—information which helps in discussing food selection and the adequacy of food allowances with families and staff members and tends to make uniform the teaching done by all the agencies throughout the city.

While all the relief agencies use the same basis for estimating food allowances, each adapts it to its needs. For instance, some estimate the cost of milk wholly on the cost of bottled milk, which runs a little more and hence gives families a little more leeway; while others calculate on the use of half bottled and half evaporated milk. The Jewish agencies make slight adjustments to conform to their dietary laws, such as allowing for sweet butter and the higher cost of Kosher meats.

Gradually the group has appointed committees to work on clothing and the other items in the budget. The ones on clothing and food are standing committees, as their work is continuous. The others are revived whenever there is a need for revising or repricing their parts of the budget. Just as careful attention to detail is given to setting up standards and pricing the other items as is given to food. For instance, in setting up standards for shoes, manufacturers and retailers were visited to learn about shoe construction, and records of the wearing qualities of different kinds of shoes were collected from families. It is not always the least expensive kind of merchandise that is priced. Many other factors are taken into consideration.

Clothing prices are rarely averaged, as this results in prices that are never found in retail stores; instead, the most frequently occurring price is the one usually used. The director of the department of textiles and clothing at Teachers College, Columbia University, has been a member of the clothing committee for a number of years, and her knowledge of clothing economics has been of inestimable value to the committee; at the same time, the practical knowledge of the committee has helped in planning her college courses.

When members are added to either the clothing or food committee, their first pricing is always done under the supervision of one of the more experienced members of the committee. The pamphlet "Budget Standards for Family Agencies in New York City," published in 1938, is the result of the work of all the committees.

Another service which the group renders in connection with the food of low-income groups is the publication each year of a list of bakeries selling day-old bread. Since the latter sells for one cent a loaf less than the fresh, its use results in quite a saving for large families which consume several loaves a day. Lists are sent to settlement houses, health centers, and other places where low-income families will see them.

A study of Puerto Rican diets and a pamphlet on low-cost special diets were additional contributions of the group in the field of nutrition. The pamphlet was a joint activity with the New York Dietetic Association; the diets it recommends have the approval of the New York Academy of Medicine and before they came out in pamphlet form, were published in the *Bulletin* of the Academy.

When the Temporary Emergency Relief

Administration was established in New York City, social workers were loaned from the private agencies to assist in the organization; and since they were accustomed to home economics services, the latter were included in the new agency. A director of home economics was appointed, and she soon requested members of our group to act as an advisory committee to help her formulate plans for her bureau. The duties of the committee in that direction were not very arduous because the director herself was a capable person, but it has been able to function in other ways in certain crises. For example, when, as an economy measure, the bureau was threatened with extinction, the committee promptly enlisted the support of case-work supervisors and other interested citizens who firmly believed in the service, and the bureau was saved. Faith in it has been justified many times, and even those who questioned it then now accept it as an important part of the Department of Welfare.

Another of our activities has been working with the Civil Service Commission. When the Temporary Emergency Relief Administration was finally taken over by the Department of Welfare and became a part of the city's administrative setup and it was decided to put all of the workers on civil service, some of the more experienced groups suggested that a civil service committee be appointed from the Social Welfare and Public Health Department. This was done, and we succeeded in getting the Commission to set up a classification for home economists instead of using the existing list for hospital dietitians as it had thought of doing. A statement of duties and qualifications for the different positions for home economists in relief agencies was prepared and used by the Commission in advertising the examination. Two members of the committee set up the examination questions for both the director of the department and the staff workers, prepared the key for grading the papers, and served on the oral examining board. Because of our inexperience, we did not realize that we should have given ratings to the different kinds of experience listed; and this resulted in a slight unfairness in the placing of one or two of the successful candidates on the eligible list, though it did not keep them out of positions. However, I would recommend that something be done, perhaps appointing a national committee to work out a uniform system of rating experience for the whole country.

When civil service status is required for workers in public agencies, it is important for home economists to interest themselves in it. Now we have the statement of minimum qualifications for home economists and nutritionists in health and welfare agencies prepared jointly by the American Dietetic and the American Home Economics Associations so that part of the work need not be done locally. But there is a need for good examination questions which will reveal a candidate's knowledge of the job to be done. It is very essential that home economists asked to prepare an examination familiarize themselves with the details of a given position. I have seen some very sorry examples of civil service examination questions. Another important factor is to comply with any special regulations of the Civil Service Commission. One of our local rules is that multiple-choice questions must be given when the group numbers more than a very few; this is because they use machines for grading the papers.

Supplying radio programs is another community service in which our group has had considerable success. Our city radio station gives us 15 minutes of broadcasting time once every two weeks and would give more time if we could supply the speakers. A committee selects a list of topics for a series of broadcasts and has general supervision of arrangements with the station and of scheduling the different speakers. This year each talk was prepared and

broadcast by a different member of the group. Last year the dialogue method of broadcasting was used; the scripts were written by different members, but the same two did the broadcasting because there was the contrast between their voices necessary for a dialogue. Some leaflet is always offered, and the response has been excellent—about 1,000 requests during the first five months of 1939. The program is announced as sponsored by the Social Welfare and Public Health Department of the New York City Home Economics Association, and the speaker's name and the agency she represents are given. The social welfare and public health department of the American Home Economics Association maintains a radio script exchange, whose scripts can be borrowed.

Since we all believe that home economics has a valuable contribution to make to social work, the annual state conferences of social work afford a good opportunity for reaching the professional workers who have no other contact with home economists. We have found that programs jointly sponsored by our group and one of the sections of the conference are the best method of accomplishing this. We have also learned that social workers want concrete information about the basis for the budget schedules we recommend and practical examples of their use in estimating relief allowances. They do not want to hear discussions of the philosophy of home economics. The national chairman of the social welfare and public health department can supply the name of the executive secretary of the state conferences of social work, and this secretary in turn can give the time and place of the annual meeting and the names of the program chairmen of the different sections. One has to devise ways and means of getting them to accept one's contribution to their program, and one must not be too modest in recommending one's services.

Selecting tenants to live in housing projects is another field in which assistance from home economists can be used to good advantage. As most of you probably know, the federal law sets the maximum incomes for small and medium-size families eligible for subsidized housing at 5 times or, for larger families, 6 times the gross rental established for the project. To provide a simple method of deciding whether or not an otherwise eligible family will be able to pay the rent, a schedule for estimating family expenses was prepared by a group of New York City home economists by means of which necessary expenses (exclusive of rent and utilities) of families of different sizes and composition and the amount of the income remaining for rent and utilities can be quickly estimated. While this is not the only criterion of the rent-paying ability of applicants, it is a useful addition to the others. The rents that had to be charged for the first housing project built in New York placed them beyond the very lowest income group, and so the estimates of living expenses were not at the relief level. The projects now under construction, however, will be available to families at that level, and the schedules are being revised accordingly.

The committee also arranged a contact between the New York Housing Authority and the W.P.A. homemaking project to provide a consultation service for tenants. As soon as the news gets abroad in a community that there is in it a professional group like that of the home economists prepared to give social welfare agencies practical assistance, there is never a dearth of requests. The essentials for success seem to be an awareness and understanding of what is going on, a conviction concerning the contribution that home economics can make, a knowledge of the subject matter that pertains to a given service, and an ability and willingness to work, sometimes even to fight, to convince administrators and executives of the value of what you have to offer.

UNDERGRADUATE AND GRADUATE PREPARATION FOR HOME ECONOMICS RESEARCH

AGNES FAY MORGAN

University of California

Considerable discussion was aroused among members of the home economics section of the Association of Land-Grant Colleges and Universities when Dr. Morgan read the present paper. Last summer it was offered to the Journal for publication and was accepted because of the importance of some of its points. With Dr. Morgan's hearty approval, several other heads of university home economics departments were asked to comment, and the papers received in response follow Dr. Morgan's discussion.

WHY research at all? The studies now meant by the expression home economics are conceded to form a group of applications rather than separate disciplines or techniques. Several of those who founded home economics as a college or university subject of instruction apparently considered a certain state of mind or social attitude one of the chief requirements for the instructing staff. Sentiment and indoctrination were confused with education by many of the early workers in the field, and confusion is still found all too often in certain phases of the teaching. Only with the development of a body of scientific subject matter can objective teaching largely dispel all suspicion of propaganda and piety. Since the accumulation of such subject matter is possible only through research, it seems that in a purely technical sense the development of home economics in the land-grant colleges and universities is dependent on their own and other higher institutions' programs of research.

The chain of events suggested may be expressed as follows: (1) It must first be agreed that the social object of instruction in home economics is sufficiently desirable to justify university attention; (2) university home economics departments or divisions once established retain their places in competition with other subjects of instruction in proportion to their ability to attract worth-while students and to satisfy the interest and ambition of the best of these students; (3) a body of concrete, applicable, and sound subject matter is needed to accomplish this end; (4) this subject matter is not available in all cases, nor is it being sought by other groups; (5) the home economics group must set about producing subject matter of the kind needed.

Thus wholly aside from the larger and far more important aspects of the need for research in the various phases of home economics, we can find an argument for research which will appeal to those who may need the added stimulus of an enlightened self-interest.

The larger reasons for research in all fields which apply also to home economics are, of course, first, the insatiable curiosity of intelligent humans concerning themselves and their environment; and second, the need for development of new understanding and new devices to improve the chances for health, comfort, and happiness of the whole population.

What I have to say just now, however, concerns more particularly the *modus operandi* of procuring and directing research personnel more than the reasons for

maintaining a program of research. The pragmatist's reason which I have advanced nevertheless binds the preparation of future researchers with the program itself. My thesis is, in short, that unless and until an active effective research program dominates each section of the home economics divisions of the colleges, we shall continue to bemoan the dearth of able research workers and probably also of able instructors.

When some twelve years ago federal and other funds first became available for research in home economics, very few divisions had an active research program in effect and some had had no opportunity for acquaintance with the meaning of the word. In a good many colleges one or more full-time researchers were employed immediately; some part of the two national projects was adopted as the subject of investigation; and with or without local assistance these women were expected to produce worthy contributions. Such a plan unmodified could hardly prove other than sterile. But gradually many of these full-time researchers have taken on some teaching duties, have blended with the divisions in which they work, and have colored their surroundings with their own originality and activity.

Signs of success or failure of the research program. Wherever through faults of personality or organization this blending has not taken place, the products of research and of teaching have both appeared less creditable than the setup would lead one to expect. Some of the conditions which prevail in these colleges only prove anew that a stream will not rise above its source. One example of this is seen in the full-time or even part-time researcher who, desperately casting about for assistance and multiplication of her own efforts, must broadcast an appeal to other colleges for part-time assistants and graduate students because her own division is not producing suitably trained candidates. The migration of graduate students is of course a desirable phenomenon, but the necessity for recruiting all suitable personnel from outside argues some fault at home. A similar situation exists in the matter of replacements and additions to the teaching staff.

Another criterion of the success of the research program is the amount and value of research publications. I have examined the lists of the publications from home economics departments submitted to this section by Sybil L. Smith since 1931 and have noted some interesting facts. From the 46 colleges listed, a total of 628 published reports appeared fairly evenly spaced in the six years between 1931 and 1937. This is a creditable output which compares favorably with that of many of the older and more lavishly supported divisions.

The distribution of publications, however, at least in quantity, is not correlated in all cases, either with the size of the college, of the division, or of the funds available. Of the six colleges which published thirty or more reports, three are among the smaller colleges and one of the other three has had little direct support for research. At the other end of the list were fourteen colleges which published six or fewer reports; of these, two are among the larger colleges and at least four have had reasonably adequate support.

The reasons for success or failure of the research program. These striking differences in the apparent effectiveness (and I use the word effectiveness with full realization of the weakness of my basis of judgment) of the research programs of the colleges cannot be wholly accidental. As I see it, two main factors are concerned: first, the integration of research into the work of the division; and second, the intangible quality of drive and originality in directors and researchers.

I shall speak of the second factor first because there is so little that policy-considering groups like this can do about it.

The total reservoir of real research ability has never been deep enough for the world's needs, and home economics has not usually used the bait which attracts even its proper proportion of this scanty supply. Really effective research, like any other outstanding human endeavor, is a highly personal matter, the shadow of one commanding figure. Even many of the valuable co-operative researches which come readily to mind can be seen to spring chiefly from one source. There are exceptions to this generalization naturally, but they are few. Any philosophy of government, directors, foundations, or associations which ignores this fundamental truth will result in disappointment and waste. I do not suggest, nevertheless, that co-operative research is doomed to failure. On the contrary, I view it as a most potent weapon for progress if the intelligently controlled play of individual initiative is encouraged.

The research method in undergraduate courses. The other factor, that of integration of the research program into the entire work of the division, is well within the control of this group, and about it our discussion should center. We can control indirectly the amount of worthy future research personnel which comes under our influence by strengthening the intellectual content of all our courses through use of research methods. But the objection may be raised that the work of the home economics division is not confined to the finding and training of researchers. Indeed the proportion of effort which might be thought properly directed to this end as compared with other social and educational objectives may be very small. I submit, however, that these other objectives may also be served better than they are now by the incorporation of the research method into both undergraduate and graduate instruction. I venture to define the research method as that in which conclusions and applications are kept subordinate to an understanding of the modes of obtaining and evaluating the evidence upon which such conclusions and applications are based. The latter are subjective and changeable in many cases; the former are measurably close to truth. Students of college age and caliber may be safely left to draw most of the useful deductions if enough authentic data are made available to them.

"Retail package" instruction. The content of many of the courses provided in the usual general home economics curriculum is overweighted with meticulously chosen detail in the effort at making the material function in the life of the student. This functioning may be in the teaching of high school or extension groups as well as in the conduct of the student's present or future home. If such detail as may be used directly in these occupations is chosen for the college courses, the study of principles and methods of arriving at the material taught must be largely crowded out. In the words of one of our staff, "Only retail business is done with the college student who is sent out to trade for the rest of her life with small packages of information already made up and securely tied." Graduates of such a curriculum cannot profit by any system of graduate instruction including preparation for research. I venture to doubt whether they remain really useful in any profession for long unless they have unusual capacity for growth.

The general home economics curriculum and research. The question now arises as to the possibility of using any general home economics curriculum, no matter how carefully constructed, as a basis for the preparation of successful researchers. Since home economics is now made up of four or five quite different fields based on different disciplines, and since research must ordinarily confine itself to a circumscribed area in one of these fields or at least to the use of a few definite techniques even when adjoining fields are examined, it follows that

only a portion of the home economics curriculum will contribute to the research worker's training. For example, the prospective graduate student in food and nutrition who has had the undergraduate major in general home economics usually presents only one third or less of the pertinent preparation offered by one who has had the undergraduate major in food and nutrition. The same disadvantage to the general home economics major occurs in other fields when she is in competition with the graduate presenting a major in child development, family economics, housing, or textiles and clothing. Obviously, for the student who has the ability and the desire to enter the research field, the general home economics major unsupplemented is not a sound foundation, no matter how carefully constructed and taught.

Prerequisite courses. But even the specialized majors may offer only a shaky footing unless they are constructed on scientific principles. If we accept the usual definition of home economics as a group of applications designed to better family living, we must divide these applications into logical groups based on certain disciplines or combinations of disciplines. These are chiefly the physical and biological sciences for food and nutrition, certain aspects of housing, textile chemistry, and part of the child development field. Psychology also underlies child development and the study of family relationships; economics is the basis of the management courses; architecture is necessary for housing; and art for housing and for clothing work. This is only a selection of examples, since an exhaustive cataloging of the parts of home economics and their foundations would be a thankless and fruitless task. The boundaries and the emphases are constantly changing, and the less hard and fast we make the grouping, probably the better.

For the intelligent development of the applications, preliminary study of these foundation disciplines is undoubtedly necessary. Criticism of prerequisite requirements which has arisen in recent years is justified in some cases by inadequate use of the prerequisite material in many home economics courses. Perhaps the change should be in the teaching or in the teachers of these latter courses rather than in the prerequisites. The alternative of arranging special chemistry or other foundation courses for home economics students appears not to work out well, at least for those who would go on to graduate study and research. The very nature of research renders ineffective and futile the neat, ready-tied packages of chemistry or any other necessary study. Even for those who do not contemplate research, there seems to be a numbing finality in some of these courses. To be sure, such special courses may be and sometimes are more stimulating and vista-producing than their academic rivals, but only when they embody the scientific or research method of teaching.

The same criticism—that of too much attention to conclusions and isolated applications—applies to the home economics courses themselves, supposedly based on these foundations but often winging their way blithely alone, sometimes duplicating the exact materials of the prerequisite course, sometimes never touching any part of it even though the concepts taught badly need such illumination. What chance has a future researcher to think of ways of attempting new solutions to old or new problems if the already available examples of the use of fundamental disciplines in such situations are not pointed out to her? Upon the sound foundation of the pure science courses there can be erected an intimately interlaced and strongly attached superstructure of home economics studies so similar to the foundation in structure as to make imperceptible the dividing line. Re-

search, in turn, tops the whole as a roof-garden and penthouse studio where new furnishings, food, and machines for use in the academic living quarters may be produced.

The research method for all home economics courses. I return now to my original thesis that the research method, as previously defined, and the presence of research activity must infiltrate every phase of the undergraduate courses in order to ensure a supply of professional research personnel and also a fair degree of return from the effort and expense of maintaining a research program. Perhaps no one today will deny that home economics must have a research program. In this connection I should like to quote a sentence from a letter which I received in 1931 from the late Martha Van Rensselaer, one of the recognized founders of home economics. She wrote: "I should like to assist on a research program because I think it is absolutely fundamental to home economics progress."

If research is essential to home economics progress, then the organization of the division should be such as to allow research development by its own students, staff, and graduates and not solely by the efforts of one or more odd, forlorn research workers imported from elsewhere, figuratively speaking a language foreign to the rest of the inhabitants and attempting in an intellectual vacuum to set up the framework of a research program. Without the presence of properly equipped graduate students such research workers lack the stimulus of companionship and leadership and the willing help of enthusiastic young followers. They cannot reproduce their professional kind, and even their output of data must be largely restricted. Teaching and research are natural companions. Each enhances the value of the other, and in the higher institutions one without the other becomes dull, inhibited, and sterile. It seems indeed that no program for the undergraduate training of students who will later participate in research can be set up independent of the presence of research itself in the student's environment from the freshman year on.

Examples of the research type of course. Perhaps you wonder just how these rather vague wishes for more scientific undergraduate and graduate subject matter can be materialized and how they can be reconciled with the urgent social demands made on home economics. Must the traditional freshman and sophomore course in food preparation deal only with test tubes and thermometers and no edible foods be concocted? Can a prospective high school teacher or extension agent or homemaker learn what she should know about food choice, preparation, and service in an experimental course which only occasionally encompasses a real meal? Or is the only practical course one which includes full directions for producing perfect cooked products, marketing hints, and plenty of menu making and meal service? You will perhaps agree that such a course is almost a complete waste of time for the future researcher in food technology and experimental cooking. I believe it is likewise the least "practical" kind of instruction for the other students whom we serve. No new intellectual light is cast on old routine drudgery in cooking, housework, child care, clothing construction, or any of the other sections of our curriculum merely by gathering together the most approved procedure for doing that drudgery and requiring students to go through the steps in an artificial laboratory or practice-house situation. In a short while social, economic, and industrial changes may alter conditions so that the approved procedures are obsolescent and the student will be left to work out new solutions alone. The scientific mode of teaching, on the other hand, provides chiefly principles, methods of reasoning and of problem solving, leaving the student to develop her own best pro-

cedure both in the undergraduate course and in her life situation. She receives a wholesale consignment, so to speak, and must be able to do some of the small packaging herself.

Such a beginning foods course grows naturally out of and further expands prerequisite chemistry and physics courses. It is inevitably accompanied or followed by food analysis or food technology courses of more quantitative but similar character, and these in turn may be followed by biochemistry and nutrition courses. The interest and growth of the specializing student practically dictates the experimental nature of these later courses. The nutrition course may give little attention to the momentary nutrition dictator's notions of the optimum amount of this or that in anybody's daily diet or the prevailing medical opinion on the make-up of therapeutic diets, but it will demand that the student go through as many of the classical experimental techniques as can be provided. Firsthand acquaintance with basal metabolism tests, mineral and nitrogen balances, vitamin assay, and the study of avitaminosis should provide as good a basis for action by the future homemaker or teacher or dietitian, as well as researcher, as the combination of arithmetic and cooking which is often offered under the name of dietetics.

Instruction on two levels. It is obvious that the general home economics major cannot demand this sequence of experiences in food and nutrition from its students, since it should in that case give equally valid instruction also in child development, family relations, family economics, housing, and textiles and clothing. Twice four years would probably be too short a time for such a major.

The future researcher must, therefore, either choose her specialty early or retrace her undergraduate steps from as far back as may be necessary before embarking on her graduate study. In order to save her this loss of time, a clear distinction should be made between any service, but still not "small package" courses offered to the nonspecializing student and the thoroughgoing experimental courses meant for the specialist. There appear to be only a few subjects which require such duplication of offering. Nutrition and textile chemistry are outstanding examples of subjects which need not only to be abridged but changed in presentation for students who offer the minimum of prerequisites. They must usually be offered on two levels if both general and specialized students are taught in the same division. There should be no doubt in any student's mind, however, about their difference in professional value so that each may make the proper choice. The lower level nutrition course, for instance, will serve the needs of pre-nursing, pre-dental, physical education, and social-work students just as well as those of the general home economics students but will not suffice for the prospective dietitian or graduate student of nutrition. Nevertheless, this course cannot be taught by the "great authorities tell us" type of instruction without serious loss of value and prestige. The high school teacher who has been taught only conclusions and applications will pass these packages prematurely to her students, thus rendering still more futile the later college teaching of the same things. The higher level nutrition course can be offered effectively only in the division which is equipped for nutrition research and can be taught adequately only by the instructor who is experienced in and actively pursuing such research. The transition from such a course to graduate seminar and research is natural and easy.

It should not only be unnecessary to set up a totally different curriculum for the training of research workers from that offered to the food and nutrition, child development, or other specialized major (as distinct from the general home eco-

nomics major), but it should be recognized as highly undesirable to do so from the point of view of both groups of students. The graduate programs of these groups will differ rather widely undoubtedly, but the undergraduate requirements are surely very close together.

The corollary of this argument is that a minimum of core subjects must be included in the home economics curriculum and that the specialization or nonspecialization of every student be determined at the earliest possible moment. The nonspecializing home economics student should be frankly apprised of her status so far as graduate study and professional training are concerned, as should likewise be the specializing student with reference to the broad, if not deep, preparation needed for the high school teaching and extension work which are largely in the domain of the general home economics graduate.

Acquisition of techniques. The actual techniques used in research in the field of food and nutrition, textile chemistry, household equipment, and child development are chiefly those of chemical analysis, microscopy, histology, physics and engineering, psychological measurements, and statistics. No undergraduate curriculum can include all of these, nor even all of those needed for a single field. Tool acquisition must continue through the graduate years and beyond—indeed, as long as new problems turn up in the research laboratory new methods of solving them must be found. The techniques needed for the graduate student's own research problem, presumably to be embodied in a thesis for the Ph.D. degree, are those which must be acquired by that student. A worthy thesis problem will demand a variety of pertinent techniques which should sufficiently supplement those acquired during an undergraduate career devoted to the same general field. Such a graduate will be able to acquire new tools as needed in her later independent work.

Conclusion. Finally, I venture to conclude that the causes of the relative success of the research idea in some colleges and its lack of success in others rest not solely on the ability or drive of those entrusted with its promotion but also on: (1) the integration of the research program with instruction both undergraduate and graduate; (2) the clear recognition of the difference between the nonspecialized and less professional general home economics curriculum and the professional specialized curricula of the subject matter divisions; and (3) the scientific foundations and structure of the courses included in the latter curricula. The need is not for the multiplication of curricula designed to meet precisely the requirements of this or that vocation, as, for example, research, but for consolidation and strengthening of the whole offering. If every member of the teaching staff were an active participant in research and every research worker of academic rank an active teacher, there must result increased production of both research data and worthy new research workers.

COMMENT

WYLLE B. McNEAL
University of Minnesota

Dr. Morgan has raised a number of questions, and with many of her conclusions I am in agreement. One point causes me to comment.

One can agree with Dr. Morgan that the field of home economics needs well-equipped persons for the maintenance and development of a strong research program. We are in agreement that those who are to do research work must have the necessary techniques for the particular kind of work undertaken. The skills and techniques needed may differ, depending on whether

or not the problem is in the field of family relationships, housing, home management, foods, nutrition, textiles, related art. One type of background and training program will not satisfy all these needs.

A problem of primary importance is that of deciding who shall be guided into and prepared for research fields. To one who has met hundreds of undergraduate students at the beginning and more advanced levels of college education, it is obvious that the great majority of young women are not interested in a research career. A few students do indicate what the adviser interprets as an interest in investigational work. For those who are interested in research and who manifest ability, a program made to fit the individual's interests and needs is possible in many institutions. While many colleges do not indicate in their catalogs that a curriculum for the preparation of the research worker is available, it is probably true that the opportunity is offered for the competent student to pursue the proper studies on an individualized program basis. College catalogs seldom keep up with an institution's practices. Experimental procedures are seldom listed; for that reason Dr. Morgan is right that the college catalogs do not give the complete picture and are not wholly reliable guides.

It is easy to misinterpret the stated interest of the college woman. Analysis of her interests often indicates that she wishes to enter some phase of the foods and business field where research skills are not needed. What she wishes to do does not call for a high degree of specialization either in subject matter or method. Ability to find needed information, public speaking ability, and certain other personal qualities and abilities are more important for the work she wishes to do. It would be my judgment that relatively few students should be encouraged to take the research route as undergraduates. We know full well that the very great majority will not study long or intensively enough to be really competent research workers. The great bulk of women entering home economics wish a remunerative job at the end of four years and expect to establish a home and family in a very few years thereafter. Consequently, the best one can do for them is to give basic training for the lifetime job of homemaking. Their needs do not call for a high degree of training but a more generalized and broader type. The educational programs of these young women should not be confined to one field of home economics on the assumption that some day they might wish to do research work. If through interest or necessity one so educated should want later to enter investigational work, then is the time to make up any deficiencies and proceed toward the new goal. There are ways of doing this without too great loss of time.

There are a few students who show decided interest and talent for research work in the undergraduate years. These should be guided toward an individual program by a person competent and active in a field of research. In these cases some of the usual requirements are waived to substitute others more beneficial to the student. The amount of learning ordinarily required by the master's degree would seem to be the minimum for a person who wishes to be a research assistant or to hold a minor research position, but certainly no hard and fast rule should be made. One person with only bachelor's degree training of high quality will be better prepared for minor investigational work than another with a larger quantity of training and less native ability. Undoubtedly the field of home economics at the present time has too few well-qualified research workers. That is true in other fields as well. We need techniques for locating potential research

workers. Of course, we need better training programs.

Dr. Morgan is right in cautioning us that the best training program is none too good. Many of us would argue with her on the value of certain courses in home economics which she tends to discredit as good or necessary training for the potential research worker. A good teacher of undergraduate courses points out many unsolved problems and many inadequacies of present information, and interests her students in the role of the research worker in helping to understand and solve homemaking problems. She brings to her students or causes them to get the most recent research findings which will help to throw light on or solve problems. No wholesale criticism of elementary food preparation courses is justified until one finds how these courses are taught. It is possible that research interests are awakened by a sense of lack of facts in relation to the proper cooking of food for maximum nutritional purposes.

The home economics research worker, if she fulfills her mission, has something more or different to do than to attempt to duplicate or imitate the workers of other fields. She must be a skillful worker of her own kind, possessed with ability to explore her chosen field, select pertinent important problems to be solved, and prosecute them with satisfaction and distinction to herself and her field. It may be said that the ideal home economics research worker is yet to be developed. It may be said with equal truth that thus far the ideal training program has not been provided by any institution for any field of research. It may be a dark day for any institution when it thinks it has the answer.

Such presentations as those in Dr. Morgan's article are stimulating and provocative. She is probably not asking nor expecting agreement but wishes for constructive thinking and action on any important problem in all fields of research.

COMMENT

LITA BANE
University of Illinois

While essentially I am in agreement with Dr. Morgan's thesis, there are some questions that might be raised.

The "state of mind" or "social attitude" to which she refers in her first paragraph is still the most important characteristic of a home economics worker, whether she be in research, college teaching, or extension, if we may judge by the emphasis put by prospective employers on personality qualifications. These qualifications are closely related to the "intangible quality of drive and originality" to which Dr. Morgan later refers and are undoubtedly responsible in large part for such progress as home economics has made. It seems evident that people of vision and imagination, quite as much as the laboratory research technicians, are needed and that education consists of something more than the learning of facts accumulated through research. The interpretation of facts and an understanding of the relationship of facts are quite as important. A moderate amount of practice in the application and testing of research findings would not seem to be amiss, if we may judge by the experience in other professional fields.

In casting about for a suitable comparison in the professional world, I have found it most useful to compare ourselves to general practitioners in medicine. Here the students cover a wide range of subjects with a certain degree of thoroughness, but in no sense so thoroughly as they must cover them if they are to become specialists. They also serve an internship in which they make application, under supervision, of some of the principles they have learned. I realize that some of our graduates cannot properly be called general practitioners in home economics—if they can be called home economists at all—when we have

allowed them to take a slice of home economics in which they use chiefly one tool, such as chemistry, and are graduated with good training in the application of chemistry to household processes but are almost illiterate in the fields of application of art, psychology, and the biological and social sciences. It is as though the general practitioner were to emphasize only the relation of chemistry to the health of his patients. This would enable him to render only a limited service, and this is true of some of our home economics trained women.

I believe we may well expect that our students who go on into research and graduate study will allow time for the necessary tool subjects after completing the regular home economics curriculum, unless they plan to do only research work; and even though the research workers are doing only a segment of teaching, that segment seems to me to be better done and to serve the whole more adequately when the teacher has some conception of the entire field of home economics.

It has seemed to me that the chief functions of the undergraduate curriculum are to give the students:

1. An insight into the functions and problems of homes and families in our present social order.
2. A point of view regarding the importance and possibilities of homemaking.
3. Access to reliable information.
4. A scientific attitude that will enable them to be intelligently curious, critical, cautious, and creative.

In the beginning, the very absence of subject matter forced most of the workers to do original work of some sort, even though it were only selecting and combining bits of subject matter. That necessity discouraged the "numbing finality" which Dr. Morgan so aptly applies to some of our instruction. It is difficult to say why we have at times yielded to the popular demand for a patent-medicine, cure-all kind of education. Perhaps it is because staff and students have not felt the same need for research that prevailed in the early days of home economics. I confess to have been at times so unorthodox as to wonder whether home economics might have been farther ahead had we not set aside research as such a highly specialized field of work. Somehow when we set up special fields, the workers have a tendency to come to be looked upon and sometimes to regard themselves as people set apart. They, unconsciously perhaps, cloak their work with mystery and a vocabulary not intended to be understood by the uninitiated, including such a complex definition of research that one feels that simple efforts surely cannot be research. One must have a minimum of a dozen rats and three dozen test tubes! Workers are sometimes too unfamiliar with homemaking needs to select suitable areas for research, which seems to me to be one of the greatest needs of the field today. A long step in advance would be taken if we were to explore the possibilities of setting up simple research projects and projects close to the needs of homemakers. These are legion and would enlist the interest and enthusiasm of most of our home economics workers, though they might not overawe them.

Any rapidly developing field is likely to suffer from the weaknesses to which Dr. Morgan has directed our attention. These are accentuated when the workers are almost exclusively women and the turnover great, as it is bound to be where the ranks are constantly being depleted through matrimony. We have just completed a questionnaire to which we received answers from 918 of our graduates. The professional life of most of this group was less than five years. A very brief professional life, indeed! When a woman realizes—as most women do—that she will probably not spend many years in a specialized

profession, she hesitates to invest the time, money, and energy necessary to prepare for research work. Advanced study is often postponed until such time as it is needed for academic promotion, and it is then not pursued primarily to satisfy the worker's thirst for knowledge. In some cases, it is postponed until the worker is too unadaptable and too short on imagination to make any significant contributions.

Not only is this true, but I have been surprised at the number of promising young students who say quite frankly that they would rather work with people than with things; that they consider research a lonely job; that the salary is not commensurate with the demands for training; that there are plenty of other opportunities open; and that so long as there are, they prefer not to go into research. This fact would perhaps have little significance if the student were of average ability, but the statement has been made by some excellent students who could undoubtedly do superior research if they chose to do it.

At the moment home economics faces a good many dilemmas, not the least of which is the redefining of its own field. It has grown rapidly. High schools have taken on certain aspects of it; colleges have been loath to drop out work which might perhaps very well be taken care of in the high schools. In my judgment, the most pressing need of home economics is judicious pruning of its branches and a generous cultivation of its roots. Time was when the chief roots on which home economics could depend for sound growth were the physical and biological sciences. Uncertain as we may believe them to be, the social sciences and psychology have developed to the point where it seems important to include them in our root system.

We may well give ear to this paragraph in the report of the Advisory Committee on Education:[1]

> A similar tendency in the past to omit important offerings may be observed in the field of home economics. Great emphasis has been placed upon certain physical aspects of home and family life, such as foods, clothing, and household equipment, whereas the study of the human qualities and relationships and the spiritual influences and values that have great significance in determining the place of the home as a social institution have been practically excluded from the curriculums.

Perhaps my difference in approach to the problem of home economics research is my chief point of variance from Dr. Morgan's thesis. She conceives the sciences as the foundation upon which home economics is built. I think of them as roots of a fruit-bearing tree which nourish the trunk and branches of home economics and of research not as a penthouse on the top of the structure but as enriching and cultivating the roots in order that their growth may be extended and be more sound, so that the branches may be more sturdy and productive.

I should like to underscore what Dr. Morgan has said about the necessity for the research method and the presence of research activity to "infiltrate every phase of the undergraduate courses"—not alone to ensure a supply of professional personnel but to ensure that the world shall have a group of open-minded, intellectually growing, adaptable homemakers and professional home economics workers of all sorts. It is a crying need at every point where home economists serve.

[1] "The Land-Grant Colleges" by George A. Works and Barton Morgan. Staff Study Number 10, 1939.

TRAINING FOR INFORMATIVE SELLING[1]

ANNA G. DOUGLAS

AN INVITATION to a store person to discuss some of the retailer's experiences with the so-called consumer movement is a generous gesture well directed. As we see it, the heart of the entire current movement is really centered not in Federal Trade Commission rulings or consumer group resolutions but in an informed and intelligent salesperson behind the retail counter. It naturally follows that, by virtue of his position as the employer and sponsor of the salesperson, the retail merchant is responsible for this education.

Our store, that of E. M. Scarbrough & Sons in Austin, Texas, has been interested for many years in promoting this type of educational work among its salespeople. As part of a training program planned to emphasize merchandise information, we sponsored for a number of months a series of 15-minute weekly meetings throughout the store in all departments, conducted in rotation by the various salespeople. The meetings were based on information gathered from manufacturers' films, letters to manufacturers, fashion periodicals, leaflets and printed material obtained from manufacturers and research bureaus, and talks by and with manufacturers' traveling representatives. Our experience with these meetings spotlighted quite a few observations which seem to be attendant upon training for informative selling.

The quickest revelation to manifest itself was the fact that the average department store buyer—or department manager, as he is sometimes called—is not so well informed about the merchandise in his department as he is customarily believed to be. It is logical to expect that the person who takes a firm's money into the open market to purchase goods would have to be an expert to buy intelligently and would need to ask a great many questions and make careful examinations in order to spend that money wisely and profitably. The buying functions of a department head, however, are often much more complex and involved than the mere making of an excursion to the New York or European market resources. Certain buyers in such departments as notions, men's furnishings, accessories, home furnishings, and housewares are responsible for buying literally hundreds of items; and in some cases, a buyer may have as many as a half dozen different departments for which to purchase merchandise. The problems of developing expertness in merchandise judgment for such a buyer are far more manifold than in specialized departments like hosiery or shoes or millinery, where the variations in the stock stem from practically a single item. A trip to the buying market is always characterized by pressure of time, long hours of figuring, and the reviewing of many different lines of merchandise, each with its accompanying sales talk. Among the buyers who are thoroughly acquainted with the lines of merchandise they buy, there are always some who fail to share very much of their information with their salespeople, generally through lack of ability to convey ideas understandably. There is a vast difference in temperament

[1] Based on a talk given at the dinner for the committee on standardization of consumers' goods, American Home Economics Association, San Antonio, Texas, June 23, 1939.

and technique between the average successful buyer and the successful instructor.

Further, it is true, at least for a store located as far away from the active market as a Texas store, that its buyers are necessarily limited to only a few market trips a year; and much intermediary buying must be done through buying representatives operating out of the New York office or through manufacturers' salesmen who visit the store. For the purpose of getting information about merchandise at the point of purchase, this method of buying is often extremely unsatisfactory. The road salesman frequently sells his product with no more information about its value and quality than price, size, color, and fashion importance imply.

Probably the most startling observation that came to our attention was the fact that the manufacturers from whom we buy goods directly again and again are unable or unwilling to explain what ingredients their goods contain or what virtues they put into them when making them. Manufacturers of clothing items, for example, get the bulk of their fabrics not from the cloth manufacturer but from the cutter-up, who may have no idea of the fiber content. It frequently happens that a manufacturer may have produced an article to compete in price and performance with other market offerings and still be unaware of any particular features in which his brain child is distinguished from similar products in his competitors' lines. The buyer for the department store faces in the market somewhat the same difficulty that the customer does when she buys from the retail store.

In our files are a great many letters from manufacturers, replying to our requests for information of one kind and another. One set of these covers our correspondence with a petticoat company of New York in which we asked for the thread count, complete fiber content, and breaking strength in both warp and filling of a slip which we were using for special promotion in our downstairs store underwear department. In addition, we asked for any points on construction and fit which would aid in selling the garment. The reply of the manufacturer is interesting:

> The following is the information which you desire:
>
> The thread count on the warp is: 450 ends in each end of silk, 96 ends of bemberg rayon.
>
> Contents of the cloth is 55% silk and 45% bemberg rayon. All guaranteed pure dye and fast color.
>
> The breaking strength: 250 lbs. per square inch.
>
> The fit of this garment has been strongly emphasized by the many features brought out in this promotion such as the authentic testimonial of the glamour girls. In addition to this information, I can advise you that points of discussion that would be interesting and helpful would be the round-cut shield which is made to conform with the contour of the body and have a brassière effect. This all helps towards perfect fitting. The same thing is carried through in the four-gore style, for those who prefer this latter type. A difference can be shown by having the usual four-gore garment that other manufacturers are making with a diamond-shaped top. All seams are double stitched throughout and are unconditionally guaranteed not to pull away under any circumstances.

Inasmuch as this information from the manufacturer did not completely satisfy us, we took a swatch of the material, furnished by the manufacturer, to our state university testing laboratory for further investigation. Upon receiving the laboratory report, we replied to the company as follows:

> There were . . . several points in your letter of the 22d which we had some difficulty in interpreting. We refer to the statements: "The thread count on the warp is: 450 ends in each end of silk, 96 ends of bemberg rayon. The breaking strength: 250 lbs. per square inch." Feeling that this type of information is becoming of extreme importance in selling, we took the generous swatch of material you sent us to our State University textile laboratory for testing, and they reported to us a thread count of 250 x 94, and a breaking strength of 88 pounds in the warp and 37 pounds in the filling. They were unable to understand the statement "450 ends in

each end of silk." Also, they reported to us that the silk is weighted, not pure dye.

To this further inquiry, the company sent a reply as incongruous as its original one:

We want to ask pardon for a typographical error in our letter of the 22nd.

The count of the warp is: 450 ends to each inch of silk (our error was in saying each end of silk). The same applies to the 96 ends of each inch of Bemberg Rayon.

The breaking strength applies to each square inch and that means together both warp and filling. Separately of course, they were counted differently. Your having taken the material for test at the State University is very interesting and we find that they are correct in the breaking strength for the warp and filling, but definitely wrong when they say that this is not pure dye. They should know that it is impossible to put in weighting in rayon and because this cloth is dyed in a woven product it is impossible to weight it. Therefore, we are absolutely certain of the fact that the material is 100% pure dye.

A similarly uninformative but even less co-operative reply came to us from a well-known radio manufacturing company upon an inquiry from the store about certain radio parts and developments. Their reply reads:

We are sorry to advise you that really answering all of the questions contained in your letter would be quite fruitless unless the employees of your company already possess an excellent knowledge of the fundamentals of radio reception.

Your sales story pertaining to such terms as "Magic Eye," "Magic Brain," Metal and Metaglas tubes, etc., may be obtained from the salesman of your distributor who calls upon you, and we suggest that your service manager who, of course, possesses a good knowledge of radio in order to hold down his position, address your employees on the technicalities and difficulties encountered with various types of installations.

The writer, having had many years' experience in retail sales as both service man, owner and salesman for retail stores, believes he is qualified to advise you regarding your retail salesmen. I have found that in practically all cases the most successful retaii salesperson possesses the least knowledge of the technical side of radio. These people should sell radio performance rather than the different things that make the wheels go round. The customer is interested in purchasing a piece of furniture which provides him with entertainment, and, of course, it is quite easy for your salespeople to demonstrate that a —— will furnish better entertainment in the way of improved tone and more stations, and better appearance than other receivers.

I have found by experience that as soon as the salesperson becomes technical in making a sale the customer is confused, and as soon as the customer becomes too technically minded they are ripe bait for the fly-by-night manufacturers who advertise in most of the radio magazines with all the wild claims, and they usually end up by buying some little known, poorly designed and constructed receiver with a great number of tubes which sells for a small amount of money, and which is usually worth even less.

The training of your salespeople in the proper handling of a receiver, when and where to tune for short wave, a thorough knowledge of the different programs, when they are on the air, etc., will be found extremely helpful.

Additional problems appeared to us to affect the efficiency with which we could train for informative selling. The store in the smaller volume classification, such as our own, cannot afford facilities for testing the purchases it makes, nor can it afford the advice of experts regarding specifications to use in buying. Even though the manufacturer has and will give information about his product, how shall the buyer, except through experience and trial and error, know how many stitches to the inch, what kind of button, the percentage of sizing, the thread count, and the tensile strength he should demand in making his purchases?

The buyer has small guidance in this direction, for the store merchant himself is yet uncertain what information the customer really wants. Store people as a whole, both buyers and salespeople, are resistant to technical information because, they maintain, it is not factual but fashion data that the customer responds to most readily when buying.

We are coming to recognize that to equip the salesperson with information sufficiently adequate to make her an expert requires

more on the retailer's part than mere training in sales conversation. That the customer has a right to expect the salesperson to be an expert was most ably defended by Hazel Kyrk of the University of Chicago in speaking at the National Retail Dry Goods Association's midyear convention in 1937. Dr. Kyrk portrayed the typical woman customer as a person who is responsible for the purchase of many items—clothing for herself and her family, household items, foods, and so on. The buyer, furthermore, is only one of many roles she plays, often including cook, housekeeper, seamstress, family councilor and teacher, social partner to her husband, patroness of the arts, and the numberless other occupations of the housewife. It is reasonable, without question, for her to anticipate that when she is ready to purchase a blanket, the salesperson to whom she goes for advice and who works her entire days with blankets should know enough more about blankets than she to assist her in making the best selection. However, building up the salesperson's educational background in any line of merchandise requires more fundamental training than is actually ever employed in any one sales transaction. The blanket salesperson, for example, may tell the customer that the blanket she suggests is evenly and warmly napped; but in so doing, she needs to know in addition how and why napping is done and what effect excessive napping will have on the life of the blanket. The salesperson at the toilet goods counter who tells a customer that a given powder does not contain rice starch needs to know further what effect rice starch has on the skin, why some powders include it as an ingredient, and how, by a simple iodine test, she can check on the powders in her stock for rice-starch content.

The most realistic problem which our series of meetings brought to light is the difficulty in getting any time to do this type of training. Our store works the maximum 54-hour week allowed by state laws. We have only the fifteen minutes before the store opens to customers in the morning when our salespeople are available for instruction. Take from that time to read the daily advertisements, make announcements, and employ the necessary introductions and connective links to give interest and incentive to the meeting, and the time left is slight. For the privilege of having such a fifteen-minute meeting once a week, an actual concession has to be won from the buyer.

Perhaps retailers have some justification for evidencing only slight concern over the current movement for more information. They have played the game long enough to see many fads blow over, and not all of them are yet convinced that the consumer rustlings they hear and read about are not in the same class. At present the major concern of the retailer and of every retail gathering is the financial statement. No matter how forceful or urgent the trends that concern his business, if they alter the ink in his books from black to red, they are economically unsound for the merchant, and he cannot long survive a continuance of their effect. Figures gathered and released annually by the Controller's Congress of the National Retail Dry Goods Association tell better than words what is happening to the retailer's profit. In 1936 out of every dollar paid into the store by the customer, 2.6 cents accrued to the retailer in profit; in 1938, 0.3 cent. And while he learns that his profit is shrinking, he remembers also that his expenses are steadily increasing, buoyed by social security and unemployment legislation taxes, necessary building expansion, a rise in the ratio of selling salaries to total sales figures, and just in the past year a reduction of 7 per cent in sales volume.

Repeatedly, too, retailers have seen their key salespeople move merchandise fastest

by engaging personality traits like confidence and self-assertion rather than by scientific techniques of salesmanship or an abundant supply of merchandise facts. They have sold to the public too many years on the belief that what is actually fundamental to the customer is not her own ability to judge the worth of merchandise but her trust in the retailer she buys from, who, she believes, will sell her only what is good and will replace it willingly if it fails to satisfy her reasonable expectations.

In spite of all these objections, we cannot fail to recognize the value of the new movement both to the customer and to the store. We want you to know that there are salespeople who voluntarily ask for more merchandise facts and use them in selling, and that there are manufacturers who have responded splendidly to our requests for help.

I believe that the solution will depend mainly on the customer's ability to make her wishes felt strongly enough with the retailer to get the information that she wants. The initiative for promoting the movement within the store's sphere must eventually come from the top management and executives; and the sooner the customer can make her wants evident to this stratum rather than to the salesperson, the sooner, I believe, will she get what she is seeking. As David Ovens, past president of the National Retail Dry Goods Association, once said: "The retailer listens to only one authority besides his wife, and that is his customer."

INFORMATION ABOUT MERCHANDISE AVAILABLE TO CUSTOMERS IN RETAIL STORES

ALICE L. EDWARDS

How much information about commodities is available to customers choosing goods in retail stores? Do stores furnish as much as customers want and need? Many individual manufacturers and retailers insist that they do; others, that they do not. To test this point, the committee on standardization of consumers' goods of the American Home Economics Association in March 1939 suggested that standardization committees of state home economics associations make exploratory surveys in their respective states of the information about standards and related facts about merchandise which are now available to customers in local retail stores from clerks, labels, or counter cards.

The national committee suggested men's shirts, women's hosiery, electric irons, and canned foods as the commodities about which data be collected, and prepared for each commodity a brief check list of items to be considered. Although the work was started only a short time before the reports were wanted for the annual meeting in June, a dozen committees in widely scattered states sent in results of the study in local stores. Almost a thousand persons participated in the State of Washington and 150 in Arizona, but in most of the other states the number was from 15 to 40. The returns, while far from conclusive, may perhaps be suggestive to those interested in informative merchandising.[1]

[1] In this connection, see also page 696.

Information on labels and counter cards. The reports of data available from labels or counter cards indicate that for each of the different commodities on the list certain items appear fairly regularly. As was to be expected, the item most frequently listed for men's shirts was neck size, given in from 80 to 100 per cent of the cases; next was sleeve length; while slightly over one third of the cases in Washington and over one half in Arizona reported residual shrinkage.

Size of the foot was indicated on the labels of women's hosiery in from 70 to 100 per cent of the cases; whether full-fashioned or circular knit in over half the cases; whether ringless in almost as many cases; and the number of threads in perhaps 35 or 40 per cent.

For electric irons the name of the manufacturer, model number, wattage, and voltage were given in about 90 per cent of the cases. In most states the weight, a guarantee of quality or performance, and the Underwriter's Laboratory Label were provided in slightly over 50 per cent of the cases.

On canned goods the name of the product and the net contents of the container (required by law) were practically always available; the style of the pack and size of the container were given, respectively, in about 65 and 80 per cent of the cases.

The report from Arizona included the following:

> While most of these items are ones commonly expected, a few new ones are appearing, such as special finish of collar or fabric and amount of shrinkage on shirts. Comments [by participants in the study] indicate that the information obtained was usually exactly stated as "shrinkage guarantee

of not more than 1 per cent." This was in striking contrast to the carelessly worded, much qualified, and often wrong statements accepted from clerks in answer to other questions. It is interesting to note that more items in a higher percentage of cases were obtainable from the electric iron labels than in the other three commodities.

Information available from the clerk. Reports from all the co-operating states indicated that the merchandise about which the most information was given by the clerk was men's shirts and women's hosiery. The points about which information was most commonly given were kind of fiber; color permanence to light, perspiration, and washing; and in the case of hosiery, length of leg and whether the hose were firsts or seconds. The Arizona report comments:

> Inspection of these items is calculated to arouse the ire of most home economists because the information is that which could so easily be listed on labels. The written-in comments indicate that a great deal of faulty information was accepted from the clerks on these items—at least by the persons taking part in this study. If more accurate information is available from manufacturers' invoices, as many buyers and store executives claim, it does not seem to be readily available to clerks in our stores.

An individual member from Georgia writes:

> The clerks in the average store aren't trained to answer the questions asked them concerning different commodities. If the label doesn't give the information, they aren't able to be of any help. I believe this is one reason why small-town stores are losing a great deal of trade to the larger cities.

Information not obtained from label, counter card, or clerk. For each of the commodities studied, information on certain important items was not available in most of the stores either from the counter cards, the labels, or the clerks. For example, for men's shirts the breaking strength of the fabric was available in less than 10 per cent of the cases. In over half of the cases information was not available from either the label or the clerk as to whether or not there was sizing in the fabric; in almost half, information was not obtained relative to color permanence to perspiration. For women's hosiery, information on color permanence to washing and perspiration was available in only about one third of the cases.

Information available for electric irons seems to vary in different states. For example, Washington reports that information on scorch tests was not available in about 52 per cent of the cases, or life tests, in 43 per cent; and that guarantees were not given in 27 per cent. In Arizona, information on life tests was not available in 66 per cent of the cases, and in no case was information on scorch tests provided. Guarantees were withheld in 44 per cent of the cases.

In some states reports indicated that a considerable proportion of the canned foods carried grade labels, while in others only a small percentage were so labeled. The same statement applies to information as to added substances such as salt or sugar. The most information available for canned foods was reported by the Washington committee.

The items included in the check lists were carefully selected because of their special importance in the selection of the merchandise in question. It is startling to note some of the items on which so little information is available—breaking strength of the fabric in men's shirts, color permanence of women's hosiery, performance tests for electric irons, quality (in standard terms) of canned foods.

T.B. AND THE TEENS

HENRIETTA RIPPERGER

Perhaps the toughest assignment handed us today is to protect the health of our adolescent boys and girls. They are impatient of restraint. The adult world is

wide open to them. They look big enough and strong enough to take it, but they are not. They want to live the lives of playboys and glamour girls while also going to school or holding down jobs. Nature, sometimes an ally on whom one can count to do the right thing, is no help here, simply egging them on to spend their energies like drunken sailors. If they are to be protected and brought into healthy maturity, we have got to do it.

One of the greatest hazards between them and that healthy maturity is tuberculosis. No need to repeat here the melancholy facts: that youngsters in their teens are most susceptible to the infection, and that girls are more likely to succumb to the disease than boys, and among them the ones who marry and have babies very young. All this makes us realize that we cannot sit back and feel our work is done just because we have seen our children through the teeth-straightening and measles age. Much of our work is still ahead, and it is difficult work because we are not dealing any longer with children who expect to "mind their mothers," even if they resist, but with rebellious people who look grown-up but are not and who cannot be handled by being told in black and white what not to do. You cannot meddle directly in the affairs of an adolescent. Instead, you must withdraw your hand from the circumference of his life and try to work on the conditions that surround him, to prevent his making contact with the disease, and to equip him to resist infection.

Tuberculosis is catching, like mumps or any other contagious disease; so, the first step is to look for it in the circle in which your youngsters live. Be sure they are not in close and affectionate contact with old people who have "chronic bronchitis" or any similar complaint, unless you have found out by medical examination, which must include X-ray, that the ailment is not a slow form of tuberculosis which old people frequently have. Insist that teachers undergo similar examinations each year. The danger here is obvious. See that schools and fraternities and sororities require examination of maids, food handlers, and other servants. Work for tuberculin testing of all students, which costs almost nothing, and an X-ray examination of those who react positively.

At home, you can work to build up their resistance. Studies of innumerable cases indicate that factors which predispose them to infection are overactivity, lack of the right food, lack of sleep, worry about social success or money, emotional conditions at home, and poor health.

What to do? First, you can run your home so that they get eight hours sleep a night. If there are late hours during the week ends, let the youngsters sleep in the mornings even if you do feel that they ought to be up and at work. You can even encourage a little loafing as an antidote to overactivity. You can put on the table plenty of resistance-building food—eggs, milk, fruits, and leafy vegetables. You can help them not to worry about social success, first, by not putting up any false standards yourself, and second, by giving them a social backing in the form of a home where their friends are always welcome. It is sometimes hard to protect a youngster from worry about money these days, but you need not pass on your anxiety. And you can buy for him a feeling of security by putting even a very small emergency fund in the bank in his name. Studies of two hundred fatal cases of tuberculosis among girls showed that a good many of the victims had this common denominator —a broken home. You can see to it that you don't harp on health. You can be reassuring about it. But you get the idea: ease up on pressure, or, as they say in Hollywood, "Have it easy!"

Finally, you can work with your school,

work with your board of health, work with the local tuberculosis association.

T.B. is old and tough. Our children are young and not tough at all. But we can beat even T.B. if we all hang together!

NATIONAL RESTAURANT CONVENTION

ELLA M. ECK

The National Restaurant Convention in Chicago, always interesting to those responsible for large-quantity food production, made a departure this year by having a section devoted to the problems of university and college dining halls. This section was in charge of J. Leslie Rollins, director of dormitories of Northwestern University, who served as chairman, and Florence Pope, director of residence halls and commons, University of Chicago, who acted as cochairman.

Two sessions of this group were held, with an attendance of about sixty persons. The program was made up of prepared addresses and a period devoted to the discussion of various types of dining-hall problems.

The first and possibly most important topic discussed was the social aspects of dormitory life and the opportunity offered for the social training of students. George Arbuchle, director of men's dormitories at Purdue University, gave the prepared talk on this topic, and a general discussion followed. Among the points suggested were: Inviting members of the faculty and their families and the parents of students to the dormitories as guests at meals helps the students to be at ease in social intercourse; to have at least one meal a day which is dignified and leisurely and to serve the meal family style with a student at head of each table gives good social training; raising food standards in residence halls assists in raising standards in fraternities, sororities, and rooming houses.

Donald Halverson, director of dormitories and commons of the University of Wisconsin, described the co-operative system of caring for dormitories with student help, thereby giving them not only financial assistance but also training in working on a job. He stressed the importance of recognizing the personal and social problems of students.

Doris Forsman, director of dormitories at Bennington College, discussed the study of the scientific management of work, including the need for analysis of time and motion, with a view to reducing the fatigue of the worker. She brought up the questions of selection of tools, cleaning materials, the working area of each worker, the size and height of tables, and the analysis of methods used by the worker. Miss Forsman introduced Ralph Billings, restaurant consultant, who spoke on the proper layout of dish rooms and counter setups and the planning of service rooms. He called attention to the importance, when buying new equipment, of taking into consideration the amount of labor needed for its operation, since each worker means a total expense of $1,000 a year.

Professor Howard B. Meeks, head of the hotel department at Cornell University, discussed food cost control through cost accounting.

Problems brought up during the discussion period included the average food cost, the average labor cost, the cost of specific foods as milk and cream, the best cuts of beef for roasting, the handling of toast for large numbers, glass-washing, and the price charged for board.

Among suggestions for next year's program for this group was the consideration of the specific problems of the home economist.

The general program of the Restaurant

Convention covered a wide range of subjects discussed by authoritative speakers from many fields. Among the topics and speakers may be mentioned: "Leadership," Ralph L. Lee of the personnel department of the General Motors Corporation; "Common Interests Among Hotel and Restaurant Executives," Thomas D. Green, president of the American Hotel Association; "Fluorescent Lighting," C. E. Weitz, illuminating engineer of the General Electric Company; "Public Relations," Walter D. Fuller, president of the Curtis Publishing Company; "National Legislative Research," G. R. Le Sauvage of Shrafft's, New York City; "New Products for Use in Restaurants," Paul R. McAlister, director of Permanent Exhibition of Decoration, Architecture and Crafts at Rockefeller Center, New York City; "The Uses of 'Sterilite,' the New Bacteria-Destroying Light," George A. Peyton of the Westinghouse Company; "The Problem of Special Diets in Restaurants," Dr. E. H. Rynearson of the Mayo Clinic; and finally, soaring aloft, "Catering in the Airlanes," George L. Kanberg of the United Airlines.

A number of prominent restaurant operators discussed topics of common interest. Besides prepared talks on food production and service, there were "Shop Talk" periods for discussion of problems of self-service, counter-service, and table-service restaurants.

As always, the exhibits of equipment and food provided an opportunity to see the most modern developments. Much of the equipment could be seen in operation, with experts at hand to demonstrate new or unusual features. The range of equipment displayed was truly amazing, from paring knives to automatic door openers and conveyors.

No description of the Restaurant Convention is complete without mention of the social events planned for the members. These included a welcoming dance, a dinner party for the women, the "Early Birds" breakfast, and the annual banquet. These social occasions served as the finishing touch to a week of very fine lectures, demonstrations, and conferences drawn from the restaurant industry of the nation.

PRACTICAL EXPERIENCE FOR UNDERGRADUATE STUDENTS IN A PUBLIC SCHOOL NUTRITION CLINIC

EVA G. DONELSON

It is the good fortune of junior and senior home economics students in a certain nutrition course at the University of Minnesota, and of a few graduate students in foods and nutrition, to participate in the nutrition clinics for undernourished children that have been operating most successfully for some time in St. Paul under the direction of Agnes Larson, nutritionist and home economics supervisor in the St. Paul school system.

The undergraduate students are given a varied experience, including assisting with some of the clinic routine and participating in certain investigational work that may ensue. They plan the school luncheon menus for one week and during that week visit the clinic for the purpose of noting the children's reactions to the food served. They observe and often assist with the weighing and measuring of the children. One most valuable experience afforded each student is that of planning a budget for the family of one of the clinic children. Some students visit the families of their children, but others do not, depending on the particular home situation. The welfare of the family under observation is always the first consideration. Each of these phases of participation is carried out under the direct supervision of Miss Larson or one of her assistants.

One of the challenging problems in which

the undergraduate students have shared is that of considering the efficacy of the various methods used for selecting undernourished children for attendance in the clinic. The following combination of methods is employed by Miss Larson as a routine for the selection of children who are in need of special feeding attention: the physician's examination; the judgment of the school nurse, pupil's teacher, the nutritionist, and the parents; and application of the Baldwin-Wood height-weight-age standards to those measurements.

Objections have been raised to the widely used height-weight-age index as a measuring rod for the nutritional status of children because of its inadaptability to differences in body build. Consequently other objective methods have been devised, among them the width-length index of Pryor.

It was of interest to ascertain whether the Pryor measurements could be made routinely in a clinic as quickly and effectively as the height-weight measurements; whether different persons could take the measurements with an acceptable degree of agreement; and whether the results obtained by the Pryor method would agree with those secured by the Baldwin-Wood method. For workers who had had some experience in taking the measurements, the time required for completing the Pryor procedure was no greater than that required for the Baldwin-Wood method. Measurements taken on the same individual by two different operators who had had some experience agreed well; differences observed were not sufficiently great to be statistically significant. By the Pryor width-length method, 42 per cent of 959 children examined were classified as undernourished, whereas by the Baldwin-Wood method 21 per cent were so assessed.

An example of a problem carried out by a graduate student, Dorothea Siebert, working with Miss Larson, was an evaluation of the school clinic in terms of benefits to the children. She used several means for judging the progress made by the children over an eight-month period. The methods used and the results obtained in this study will appear in another publication.

In short, the nutrition clinic, as conducted by Miss Larson in the St. Paul public schools, functions as an effective educational laboratory for the University students who are permitted to co-operate in the program.

IN HOME SERVICE OF PUBLIC UTILITIES

HELEN PETERSON

The home economics student who plans to go into the business field usually finds it difficult to get undergraduate experience in a commercial home economics department. Although every kind of experience she can get in working with food is valuable, work in a test kitchen or home service department will show her whether or not she is suited to this type of work; and if she is, it will also provide her with a recommendation for a future job.

The University of Minnesota home economics department, with the co-operation of the two public utility companies in Minneapolis, has succeeded in providing such experience for its students. During her senior year, each student majoring in foods serves a six-week apprenticeship, working two afternoons a week in the home service department of either the Minneapolis Gas Light Company or the Northern States Power Company, both of which are under the direction of competent home economists.

The senior is initiated into the routine of the department and gets a taste of each of the many kinds of work carried on. She does some clerical work, such as filing, typing, and assembling recipes for mailing. Since many homemakers call on these departments for help with their cooking

problems, she also spends some time answering telephone calls. This makes her realize how well she must know her principles of cookery. Demonstrations are given in both of the departments. In helping to prepare for them and in assisting during the demonstration, the student develops a knowledge of standards and techniques. At some time during her apprenticeship she may accompany a member of the staff on a home call. This, together with her experience in meeting people who call at the department, gives her an insight into customer-company relationships.

Needless to say, the student does not become proficient in any of these phases of the work during this short time. She is, however, confronted with actual business situations in which she is judged as a professional rather than treated as a student. At the end of the six weeks the department director under whom she has worked sends a letter to the student's major adviser, giving a report of her adaptability to the work. This is filed, to be used later in making recommendations for positions.

This program benefits the home economics department and the companies co-operating, as well as the students. It helps the University by providing practical training and by indicating the abilities of its students in actual work. The companies, in addition to getting some of their routine work done, are training girls for possible vacancies in their departments. As for the students, merely being in a business atmosphere, as contrasted with the academic one to which they are accustomed, is helpful to them later when they take positions.

EDITORIAL

THE A.H.E.A.'S POLICY ON ADVERTISING AND EXHIBITS

For almost thirty years the American Home Economics Association has regularly carried advertising in its JOURNAL and for fourteen years has arranged commercial exhibits at its annual meeting. It does this partly as a source of revenue but also because it finds several other values in the practice. Carefully prepared advertising and exhibits seem to the Association a legitimate and convenient source of information regarding goods and services used by home economists in their professional work. Incidentally, such copy and displays may also suggest occupational possibilities for home economists in the business field. Perhaps even more important to the program of work of the Association, these commercial contacts give a chance for it to put into practice its principles of consumer-business co-operation.

Throughout its history, the Association has insisted on certain standards for the advertising and exhibits it accepts and has consistently refused to give space to those which do not meet these standards. When it questions something submitted, it tries to explain in what respects the material is unacceptable. The difficulty may be with the product or service itself, or it may be in the way in which it is described. In the latter case, the Association often works with the advertiser to improve the copy, and as a result some of the statements in the JOURNAL'S ad of a given article are more accurate than similar ones appearing in other magazines. The Association believes that in this way it does more than protect its readers—it helps progressive advertisers to prepare materials that conform in practice as well as in theory to the principle of truth in advertising.

Of course, offhand, personal judgments are not enough for settling questions of acceptability, and through the years the Association has gradually developed both general policies and provision for technical advice in the application of those policies. For several years a committee was at work drawing up a somewhat formal statement of policies for the guidance of the business manager, and there is also a committee of experts in the various fields covered by our advertisers to whom she may turn for technical advice on specific questions. Of course, despite these precautions some errors occasionally slip through, especially when copy comes in late; but once detected, they are not allowed to appear a second time. The editorial policy of the magazine is in no way related to the advertising policy, save as both reflect the policy of the Association. No case of conflict has so far arisen; but if it should, the advertising would as a matter of course yield to the editorial policy.

A few paragraphs condensed from the "Statement of Policies Concerning Advertising in the Journal of Home Economics and Convention Exhibits" will indicate what those policies are:

Responsibilities of the business management. Two sets of these are recognized to the Association and to the advertisers:

> The business management is responsible to the Association as a whole and to its individual members for accepting only such advertising as is in accordance with the program of work of the Association and the editorial policy of the JOURNAL.

There should be reasonable assurance of the accuracy of factual statements made by advertisers; and in so far as possible, the line should be drawn sharply between statements of fact and expressions of opinion.

Responsibility to the advertiser includes: facilities for effective display of copy and products; evidence that his message has reached the audience intended; protection against disparaging claims of competitors; aid in program for more trustworthy advertising; suggestions with reference to right type of copy or modification of copy to make it most acceptable to a group of professionally trained readers; prestige that comes from representation in a journal or exhibit of high standards and sponsored by an influential professional organization.

Types of products, services, or agencies. Goods and services that might be advertised or exhibited are thus classified:

Most appropriate

Products used by home economists in their professional activities and ultimately by homemakers trained or influenced by home economists: books and journals, cleaning agents, equipment, foods and related products, fuels, furniture and furnishings, textiles and clothing, utensils, other household or teaching supplies.

Services used by home economists in their professional activities and ultimately by those being trained or influenced by home economists: school and college announcements; educational travel, including transportation to annual meeting; recipe, pattern, and bulletin services; placement agencies of unquestioned ethics.

Also acceptable

Services used by women in general: insurance, nonprofessional books and journals, travel.

Products used in good grooming and personal hygiene if evidence is available as to the quality, the usefulness, or the harmlessness of the product and if the display or copy is in keeping with good taste and otherwise conforms to our advertising policies.

Not acceptable

Non-reputable or financially irresponsible agencies.

Products that are unlikely to appeal to our readers or visitors or that are inappropriate for a professional journal or meeting.

Products or services disapproved as a result of scientific investigation by qualified agencies.

Products and devices which should be used only on the prescription of the qualified specialist.

Services or agencies concerned with controversial topics, especially political, industrial, or religious.

Types of copy or exhibits. The following considerations guide the choice of these:

Most appropriate

Factual data which can be checked: composition of food product; fiber identification of textile product; conformity to official grade or standards; performance under controlled conditions.

Information from trade associations showing what they are doing to maintain or raise standards or improve service within an industry.

Exhibits illustrating manufacturing processes, means of testing products.

Exhibits manned by technically trained workers who are able to give information desired by professional people.

Also acceptable

Institutional advertising of reputable companies.

Not acceptable

False, misleading, or extravagant claims for product or service.

Failure to differentiate between statements of fact and opinion.

Claims for general supremacy or superiority over certain competitors or for certain uses or functions for which the product is not appropriate or adequate.

Featuring of meaningless or misleading seals of approval or rating by unqualified standardizing agencies. Implication that the Association accepts seal or rating as a guarantee of quality.

Copy in which testimonials or premium offers are given more emphasis than information as to product or service. All prize contests that are offered for use as part of classroom procedure.

Material from a commercial agency that purports to be wholly or disinterestedly educational.

Any technical questions not covered by the statement of policies are referred to the technical advisory committee, and new questions of policy that arise are referred to the committee on policies.

PUBLIC AID FOR LIBRARIES

Bills providing federal aid for libraries will come up for consideration before Congress this winter. While this subject may not be definitely mentioned in the legislative program of the American Home Economics Association, the fact that the membership is in full sympathy with it was shown by a resolution passed in June 1938 and printed on page 43 of the *Bulletin* for September of that year:

> WHEREAS, There are forty million people now in the United States without library service; and
>
> WHEREAS, Library service is recognized as an important contribution to education, especially to adult education; and
>
> WHEREAS, The American Home Economics Association has in its program of work a co-operative project with libraries, in the operation of which one of the obstacles is inadequate library service; therefore,
>
> *Resolved*, That the American Home Economics Association record its favor of appropriate federal aid for library service.

The work of the Association's committee on home economics in education through libraries is being continued under the stimulating direction of the chairman, Miss Harriet G. Eddy of the University of California, Berkeley. Last year it had a program of co-operation between home economists and librarians in 32 states and two territories, and its report (printed on page 33 of the *Bulletin* for September 1939) showed it to be working perhaps the most effectively of any comparable committee. One of its recommendations was:

> Continued and increased interest should be given to securing more adequate library support where libraries exist, and to their establishment and maintenance where there are none. Co-operation with federal and state agencies for libraries and with the American and state library associations is most relevant.

In other words, no state home economics association need question its authorization to push for federal aid to libraries in case its membership so desires. And since influence from "back home" counts for so much in Congress, there could be no better form of support for federal aid to libraries.

Aid to libraries is included in the pending bills for federal aid to education. These are the Harrison-Thomas bill in the Senate (S. 1305) and the similar Larrabee bill in the House (H.R. 3517). The Harrison-Thomas bill was favorably reported in the last session by the Senate Committee on Education and Labor and is now ready for a vote by the Senate itself. The Larrabee bill awaits a hearing by the House Committee on Education. Further information about the bills, including the proposed grants to individual states, has been assembled in a leaflet by the American Library Association, 520 North Michigan Avenue, Chicago, Illinois. Copies may be obtained on request.

State aid for libraries is another thing that state home economics associations may wish to work for. About this, too, the A.L.A. will furnish helpful information.

AMERICAN VOCATIONAL ASSOCIATION

During the convention of the A.V.A. in Grand Rapids, Michigan, December 6 to 9, the home economics section will meet on Thursday, Friday, and Saturday mornings and close with a luncheon at which the Michigan Home Economics Association will act as hostess. The general theme for the home economics meetings is "Homemaking Education for Community Programs," and community demonstration projects will be discussed on Friday morning. On Saturday morning there will be a panel discussion on "Promoting Pupil Growth Through Club Organization" and a discussion and demonstration of "The Use of Movie Films in Homemaking." On Thursday afternoon representatives of the eight divisions of vocational education will draw a composite picture of the subject.

RESEARCH

THE CALCIUM AND PHOSPHORUS CONTENTS OF VEGETABLES COOKED IN FAT

HSI HSUAN YÜ AND MARGARET L. FINCKE

Oregon State College

CHINESE diets have been reported by many investigators to be low in calcium. Adolph (1), in reviewing the literature on the subject, said that the usual ingestion ranged from 0.33 to 0.48 gm. of calcium per day. Kung (2) found the daily average calcium intake of a group of Chinese college women to be 0.419 gm. This low intake might be expected, as milk, on which Western countries depend for the main supply of calcium, is not a common article of diet in China and vegetables are the principal contributors of this important element. In view of the low intake of calcium, any losses of this element in the preparation and cooking of the vegetables might have serious effects on the adequacy of the diet. It seemed important, therefore, to investigate the amount of calcium lost during one common Chinese method of preparing vegetables and compare the results with the losses during the boiling and steaming methods ordinarily used in this country, as reported in the literature.

Berry (3) in 1912 reported that the losses of calcium in cooking spinach were very low, a fact confirmed by various other workers. Later, however, it was found by Fincke and Sherman (4) that the calcium of spinach was unavailable to the animal body, partly at least because of the presence of oxalates, which probably also accounts for the low solubility of the calcium during boiling.

Losses of calcium and phosphorus from other vegetables may vary widely, according to published reports. For calcium, Courtney, Fales, and Bartlett (5) report losses varying from 21.4 per cent for string beans to 28.4 per cent for carrots, after "thorough cooking." Peterson and Hoppert (6) and Brookover and Pittman (7) each report lower calcium losses than these, except for cabbage, in the cooking of which 62 per cent was lost when a small amount of water was used and 72 per cent in a larger amount of water, and celery cabbage, for which losses with small and large amounts of water were, respectively, 43 per cent and 50 per cent. Phosphorus losses likewise show a wide variation according to kind of vegetable and method of cooking, the highest loss being the 70 per cent reported by Courtney, Fales, and Bartlett for New Zealand spinach during the "thorough cooking" process. Denton (8) found that the losses of both calcium and phosphorus depended on the time of cooking, the amount of water used, and the solubility of the salts in the particular vegetable.

Steaming has been found by several investigators to result in little if any loss of minerals, but this method is not generally recommended for most green vegetables.

Noble and Halliday (9) recently reexamined the subject of losses of minerals, as they had found that most of the published studies had been made when other methods of cooking than those now recom-

mended were in vogue and also that most of them had been made with the use of distilled water, which does not represent household practice. Their vegetables were all cooked according to the directions given in their *Hows and Whys of Cooking* (10), which in general call for dropping the vegetable into a fairly large amount of rapidly boiling tap water and cooking for the shortest possible time. The Chicago city water used in this investigation contained 30 parts per million of calcium. Losses of calcium in the 16 vegetables studied were never more than 19 per cent, and some of them actually gained calcium; comparable losses when distilled water was used amounted to as much as 26 per cent. The use of tap or distilled water made no difference on phosphorus losses, however, and some of these losses amounted to 38 per cent.

The loss of as much calcium and phosphorus as some of these studies indicate would be serious in China. The common Chinese method used in the present study was sautéing quickly in a small amount of fat. Vegetables prepared in this way retain most of their original flavor and color and develop a tender but still firm texture. The kinds chosen for study were peas, asparagus, and celery cabbage, as representative of seeds, stalks, and leafy vegetables.

The vegetables were purchased on the open market in Corvallis. The peas after shelling were thoroughly mixed, and as representative samples as possible were taken for analysis in the raw state and after cooking. Asparagus was prepared as for eating, washed, rinsed in distilled water, and dried at room temperature until noticeable water had evaporated, then chopped well, mixed, and sampled. Celery cabbage heads were washed, rinsed in distilled water, and cut into quarters, alternate quarters of the same head being used for analysis in the raw state and for cooking. As soon as the surface water had evaporated they were weighed and cut into small pieces.

Samples of each vegetable were cooked, with control of all steps in the process, and then these same conditions were adhered to in cooking the lots intended for analysis. Different sized samples were used for calcium and phosphorus analyses and with different lots of vegetables. Table 1 gives the amounts of materials used and the time of cooking.

TABLE 1

Ingredients and time of cooking

VEGETABLE	WEIGHT OF SAMPLE	TIME OF COOKING	FAT	ADDED WATER
	grams	*minutes*		
Peas	50	6	1 t.	1 tbs.
Peas	100	6	2 t.	1 tbs.
Peas	150	6	2 t.	1 tbs.
Peas	250	6	1 tbs.	1½ tbs.
Asparagus	150	9	1 tbs.	2 tbs.
Asparagus	200	9	4 t.	2 tbs.
Celery cabbage	250	8	4 t.	1 tbs.

The lard was melted in a preheated skillet; when it was about at smoking temperature the vegetable was added and stirred for a time, then a little distilled water was added to prevent burning. In China this would have been soybean sauce, but water was used here to avoid any other source of calcium and phosphorus. The vegetable was cooked until tender and the result was a product that was pleasing in flavor and color, although the average Western taste might have preferred the taste of another fat than lard.

Both raw and cooked vegetables were ashed at dull red heat in the muffle furnace and analyzed for calcium by the McCrudden method. Vegetables to be used for phosphorus analysis were first covered with a thin layer of magnesium nitrate before ashing; and phosphorus was then determined by the double-precipitation method of the Association of Official Agricultural

Chemists. Phosphorus analyses of the celery cabbage were not carried out.

In all cases, four samples of both raw and cooked vegetable were analyzed, the samples being carefully matched. The results are given in table 2.

TABLE 2

Average calcium and phosphorus contents of raw and sautéed vegetables

VEGETABLE	NUMBER OF ANALYSES	CALCIUM	PHOSPHORUS
		per cent	*per cent*
Asparagus, raw	4	0.026	0.074
Asparagus, cooked	4	0.026	0.073
Peas, raw	5	0.022	0.115
Peas, cooked	5	0.022	0.119
Celery cabbage, raw	4	0.032	—
Celery cabbage, cooked	4	0.034	—

Asparagus, both before and after cooking, contained an average of 0.026 per cent calcium, the range for raw being 0.021 to 0.028 per cent and for the cooked, 0.017 to 0.030 per cent. Celery cabbage showed a range of 0.032 to 0.033 per cent calcium when raw and 0.033 to 0.034 per cent calcium after cooking. Raw peas showed a range of 0.020 to 0.025 per cent calcium, while the cooked ranged from 0.020 to 0.024 per cent, with an average of 0.022 per cent.

Phosphorus analyses of the raw asparagus averaged 0.074 per cent, with range of 0.071 to 0.076 per cent; and of the cooked, the average was 0.073 per cent, with range of 0.069 to 0.075 per cent. Phosphorus content of the peas ranged from 0.102 to 0.131 per cent, with an average of 0.115 per cent when raw; and from 0.105 to 0.136 per cent when cooked, with an average of 0.119 per cent.

Thus it is quite evident that no loss resulted in the sautéing of these vegetables, and the method is therefore to be recommended as a way of conserving the minerals. In fact, the method might advantageously be used in Western countries as well as in China. There is some tendency in institutions in China to supplant this older way with the newer method of boiling. The study here reported gives good reason for resisting this tendency, in view of the greater conservation of calcium and phosphorus found here than in the boiling methods as reported in the literature.

Summary and conclusions. Asparagus, celery cabbage, and peas were analyzed for calcium, and asparagus and peas for phosphorus also, while raw and after being cooked by a common Chinese method of sautéing quickly in a small amount of fat. No loss of these minerals was observed in the cooking of these vegetables.

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BOOKS AND PERIODICALS

NEW BOOKS

Does Distribution Cost Too Much? By PAUL W. STEWART and J. FREDERIC DEWHURST, with the assistance of LOUISE FIELD. New York: The Twentieth Century Fund, 1939, 403 pp., $3.50.

Because the costs of distribution are in the end paid by the consumer, this factual report on the methods and costs of distribution in the United States, made by a special research staff to the Twentieth Century Fund's Distribution Committee, and the committee's conclusions and recommendations constitute one of the year's most important books for home economists.

The survey shows, among other things, that it now costs considerably more on the average to distribute goods than to make them; that as many workers are employed in distribution as in production; that the output per worker since 1870 has tripled but that there has been only a slight increase in the amount of goods distributed per worker. Distribution is shown to be no simple straight-line process of carrying goods from producer to manufacturer, to wholesaler, to retailer, to consumer. Instead, a vast portion of the total "flow of goods" consists of "recirculation," such as sale by manufacturer to other manufacturers for further processing or assembly. The delivery of the "$66 billion of finished goods to ultimate buyers involves a multitude of selling and buying transactions amounting in dollar volume to well over three times the value of the finished goods."

"The task of distributors," the report points out, "is not merely to fill an existing demand . . . but to create new demands for new products." This involves heavy promotion expenses not all of which can be defended on the grounds of educating the consumer. Rather much of it is directed toward getting the consumer to purchase one brand rather than another of the same general product, a form of competition "often likely to result in higher, rather than lower, costs and prices."

Price spreads in manufactured products as well as in foods are shown to be affected by so many factors that they furnish no accurate measure of the cost of distribution. Facts regarding the role of the wholesaler, the retailer, supermarkets, chain stores, as compared with independents, the growth and content of legislation in this field, consumer credit, costs of advertising, and how consumers add to distributing costs, are presented and interpreted impartially and clearly.

What makes the book of special interest and value to the lay reader is the fact that the committee not only answers affirmatively the question posed but suggests what can be done about it. "Distribution costs are too high—not because of high profits, but because of (1) competitive conditions which cause duplication of sales efforts, multiplicity of sales outlets, excessive services, multitudes of brands, and unnecessary advertising; (2) unreasonable demands and misinformed buying on the part of consumers; and (3) lack of proper knowledge of costs among distributors themselves, too great zeal for volume, poor management and planning, and unwise price policies." Furthermore, in many cases newer distributive agencies and improved methods have lowered costs. To improve distribution, the committee says that cost should be attacked from three sides: consumer knowledge, efficient production, and legislative restrictions and regulations.

In the first of these, consumer educators will find much aid and comfort. "Even though consumers have . . . been slow to take advantage of buying aids . . . such aids should be greatly increased and . . . an intensified effort should be made by government and private

agencies to stimulate their more effective use. We recommend . . . :

"(1) The expansion and better coordination of government agencies to provide in adequate and popular form information which consumers need for more efficient buying. . . .

"(2) Further progress in the elimination of fraud and misrepresentation in printed and verbal descriptions of products. . . .

"(3) The development of informational labeling. . . . Extension, by voluntary action of business and by legislation of adequate descriptions of goods on the labels attached to them. . . .

"(4) The establishment of a differentiated pricing system for retail goods. . . . Careful study of the feasibility of adoption of a pricing system that would clearly differentiate separate prices for each article according to the amount of services involved in its sale—such as credit, delivery, return privileges, etc. This would mean in practice that a purchase paid for by cash, carried out of the store by the buyer and not returned, would cost less than if any or all of these services were required. . . .

"(5) The wide extension for public use of the facilities of government and private agencies for testing and appraising consumer goods. . . . We believe that the Bureau of Standards should make tests of leading products for specific qualities and that the results should be made public. . . .

"(6) The further organization of consumer cooperatives and consumers' group buying agencies. . . .

"(7) The extension and further development of courses on consumer problems in educational institutions. . . .

"(8) The vigorous prosecution of federal family budget and expenditure studies. . . ."

The last chapter, where the committee's conclusions and recommendations are given in some 30 pages, deserves the special attention of those interested in the interpretation and use of research data. For that matter, the entire book is a demonstration of the fact that quite technical or specialized business and economic problems can be made both interesting and comprehensible to students and even lay readers.—HARRIET R. HOWE, *American Home Economics Association, Washington, D. C.*

Nutrition and Diet in Health and Disease. By JAMES S. MCLESTER. *Third edition.* Philadelphia: W. B. Saunders Company, 1939, 838 pp., $8.

A third and entirely rewritten edition of a book which since its first appearance in 1927 has gradually become a standard handbook for professional use. The page and a half of introduction contains many skillfully worded fundamental definitions. Part I, "Nutrition in Health," discusses food needs and utilization, describes food products, and gives 60 pages to diet in health. Part II, "Nutrition in Disease," summarizes the theory of feeding in different types of disorders and gives practical suggestions (including menus and recipes) for its application. Other practical information and useful tables are found in the appendix.

Foods Workbook. By FAITH LANMAN GORRELL and HUGHINA MCKAY, in consultation with FRANCES ZUILL. Edited by BENJAMIN R. ANDREWS. Chicago: J. B. Lippincott Company, 1939, 251 pp., $0.80.

Although planned primarily for use with the authors' *The Family's Food* (see JOURNAL for October 1937), this book suggests a combination of exercise, activity, laboratory work, and testing which would cover the main points of almost any high school foods course. The material is arranged under 8 units, each subdivided into from 4 to 6 problems.

How We Get Our Food. By ETHEL K. HOWARD. New York: Harcourt, Brace and Company, 1939, 111 pp., $0.88.

How we get our milk, meat, bread, fruit, vegetables, and poultry, told for elementary school children mainly by excellent pictures but with a few lines of carefully worded text to raise and suggest the answers to questions about what the pictures show.

Fundamentals of Chemistry and Applications. By CHARLOTTE A. FRANCIS and EDNA C. MORSE. New York: The Macmillan Company, 1939, 542 pp., $3.

Planned for the common one-year high school or first-year college course in general chemistry, this book attempts to present the basic factual

material in the light of the student's daily experiences. The authors (instructors in chemistry at Teachers College, Columbia University) hope the book will also prove valuable for reference by students of home economics, nursing, and other applied sciences.

Household Physics. By WALTER G. WHITMAN. *Third edition.* New York: John Wiley & Sons, Inc., 1939, 436 pp., $3.

In bringing up to date this book for girls studying physics in general and home economics courses, the original plan has been preserved but many sections have been rewritten and new ones added. Subjects now receiving more attention than in the previous edition (noted in August 1932) are electrical devices, illumination, radio, fire protection, air conditioning, photography, and solutions and other dispersions.

Textbook of the Principles and Practice of Nursing. By BERTHA HARMER and VIRGINIA HENDERSON. *Fourth edition.* New York: The Macmillan Company, 1939, 1047 pp., $3.

A well-known textbook, first published in 1922, is here completely revised, partly to conform with the 1937 Curriculum Guide of the National League of Nursing Education and partly to bring it up to date in details of information and nursing procedure.

Studying Children in School. By EDNA W. BAILEY, ANITA D. LATON, and ELIZABETH L. BISHOP. *Second edition.* New York: McGraw-Hill Book Company, Inc., 1939, 182 pp., $2.

Workbook I. Study of Child in Preschool. By EDNA W. BAILEY, ANITA D. LATON, and ELIZABETH L. BISHOP. New York: McGraw-Hill Book Company, Inc., 1939, 40 pp., $0.50.

Workbook II. Study of Child in Elementary School. By EDNA W. BAILEY, ANITA D. LATON, and ELIZABETH L. BISHOP. New York: McGraw-Hill Book Company, Inc., 1939, 32 pp., $0.50.

Workbook III. Study of Youth in Secondary School. By EDNA W. BAILEY, ANITA D. LATON, and ELIZABETH L. BISHOP. New York: McGraw-Hill Book Company, Inc., 1939, 36 pp., $0.50.

The original edition of this book (noted in the JOURNAL for February 1934) bore the title *Outline for Study of Children in Schools.* Considerable change has been made in certain chapters, but the general plan and purpose remain the same. The accompanying workbooks have been correspondingly revised.

Woodcraft. By BERNARD S. MASON. New York: A. S. Barnes & Company, 1939, 580 pp., $2.75.

The woodcraft covered in this book includes campcraft and other crafts of the woods, using leather, feathers, gourds, even tin cans. The author is a well-known lecturer and the writer of widely used books on camping, sports, and recreation.

Tests and Measurements in Health and Physical Education. By CHARLES HAROLD MCCLOY. New York: F. S. Crofts & Co., 1939, 392 pp., $3.

A research professor of anthropometry and physical education at the State University of Iowa, recognizing the need of workers in physical education for a sound but not too theoretical discussion of various types of tests in that field, here considers the requirements, administration, and utilization of such tests and describes those available for special points, such as strength, power, motor educability, body mechanics. One chapter is entitled "Character Education and Physical Education."

Machines and the Men Who Made the World of Industry. By GERTRUDE HARTMAN. New York: The Macmillan Company, 1939, 278 pp., $2.50.

Those who remember Miss Hartman's earlier books to show children what their world is and how it came to be so (see JOURNALS for January 1932 and January 1933) will be glad to see this one about our industries—textiles, engines, electricity, oil, rubber, telegraph, automobiles, airplanes, and all. Reproductions of old pictures as well as new ones increase the sense of historical development, while the closing chapter suggests that the end is not yet.

ABSTRACTS

FAMILY ECONOMICS

Contributed by the staff of the Division of Family Economics, Bureau of Home Economics, United States Department of Agriculture

The relationship between income and savings of American metropolitan families, H. MENDERSHAUSEN. *Am. Econ. Rev.* **29,** No. 3 (Sept. 1939) pp. 521–537.

Data from the consumer purchases study of native-white, non-relief families in large cities in 1935–36 were analyzed to show the relationship between yearly income and net changes in assets and liabilities ("savings" and "deficits") of families within the income range between $500 and $10,000. Curves of these income-savings relationships showed that the low-income classes had net group deficits in all cities, but with increasing income such deficits equaled a steadily decreasing proportion of the total family income. The income levels at which the families "broke even" were between $1,500 and $2,750 in the different cities. Income classes above these amounts showed net savings, the percentage of income saved increasing with income; the rate of increase, however, diminished, at first rapidly then more slowly.

The consumer movement, K. DAMERON. *Harvard Bus. Rev.* **17,** No. 3 (Spring 1939) pp. 271–289.

The consumer movement, described as "the organizations, activities, and attitudes of consumers in their relation to the distribution of goods and services," is a product of economic evolution. "Protest" literature, books on the economics of consumption, college and secondary school courses, adult education programs, women's organizations, consumer guides, and rating services have furthered it. During the New Deal, government organizations studying and serving the interests of the consumer have grown and the retailing trade and service industries have become "consumer minded." In the future it is likely that the movement will be marked by a consolidation of the many interests now comprising it, a willingness to work with the consumer-protection efforts of business, and greater legislative pressure.

When consumers buy at "wholesale," G. B. TALLMAN. *Harvard Bus. Rev.* **17,** No. 3 (Spring 1939) pp. 339–349.

This article is concerned with "special prices or discounts not widely publicized and received only by those favored individuals who know their way about the market or have special connections." In 1935 they probably accounted for from 1½ to 2 per cent of the total retail sales in metropolitan Boston. Characterized by a wide diversity of practices, they occasionally involve practically all types of vendors—retailers, wholesalers, and manufacturers. Relatively more families in better homes than in poorer receive these discounts, which range from 10 per cent to 50 per cent or more and are based on business or employment affiliations. The most important single cause of such antisocial discrimination between buyers is the generous retail margin which is offered to stimulate dealer sales effort in the face of high selling costs.

Operating results of department and specialty stores in 1938, M. P. MCNAIR. Harvard Univ., Bur. Bus. Research (1939) 30 pp.

This annual survey shows that in 1938 department stores produced dollar earnings 41 per cent smaller than in 1937. Average net business profit, including non-merchandising revenue and other credits, amounted to 2.65 per cent of sales in contrast to 4.15 per cent in 1937. Net losses from merchandising operations were reported by 64 per cent of the firms covered. Total expense, 37 per cent of sales, was the highest since 1932–33. Among the large urban stores, merchandise returned by customers and allowances made to customers amounted to more than 10 per cent of the gross sales. About 5 per cent of the original sales transactions resulted in returns rather than in final sales; and the average value of merchandise return transactions was over $4, or about twice as large as that of the average sales transactions.

Quantity and cost budgets for four income levels, 96 pp.; Clothing budgets, 34 pp.; Quantity and cost budget for a single working woman, 10 pp. Heller Committee for Research in Social Economics, University of California (1939).

These budgets are based on San Francisco prices for March 1939. As in previous years budgets are presented for the following: family of an executive, family of a clerk, family of a wage earner, and dependent families or children. The report on clothing budgets breaks down clothing expenditures into the individual items for each family member. This year for the first time the Committee has included in its series a tentative budget for a single working woman in a low-income group; the goods and services included are intended to provide a minimum for adequate and wholesome living for a woman living alone and supporting no dependents.

Anti-chain store tax legislation, M. W. LEE. *J. Bus. Univ. Chicago* **12,** No. 3 (July 1939) 80 pp.

Of the more than 50 state laws which impose discriminatory taxes on corporate chain stores, 15 are here presented in detail. The evaluation of these follows two broad lines—the legalistic nature of the measures, including the issue of constitutionality, and their incidence. His analysis leads the author to recommend that all chain-store taxing statutes be repealed at the earliest possible moment.

Differences in living costs in northern and southern cities. *Mthly. Labor Rev.* **49,** No. 1 (July 1939) pp. 22–38.

The purpose of this study was to compare expenditures required to secure the same level of living in 5 northern and 5 southern industrial cities. The comparison was complicated because differences in the consumption of families at the same income level in the two regions arise from differences in climate, price structure, tastes, community customs, and other intangible factors. On the basis of the goods customarily consumed in the north, the cost was found to be only 1 per cent less in the 5 southern than in the 5 northern cities; in dollars the cost was $1,387 in the northern cities and $1,374 in the southern. On the basis of southern consumption habits, however, the cost was only $1,075 in the southern cities, 5.3 per cent less than the $1,136 needed to buy such goods in the northern cities.

Agricultural outlook charts, 1940: farm family living. U. S. Dept. Agr., Bur. Home Econ. (Oct. 1939) 33 pp.

The 27 charts in this book describe graphically the economic background of farm family living. Data are presented on income available to farm families; the relationships among income, value of living, and change in net worth; household facilities and equipment; value of living of low-income families, with special emphasis on their food production programs; prices paid for goods purchased for family living; and changes in farm population.

Family income and expenditures, Plains and Mountain region. Part I. Family income, G. S. WEISS, D. MONROE, and K. CRONISTER. U. S. Dept. Agr. Misc. Publ. No. 345 (1939) 330 pp.

This bulletin, the second in a series on small-city and village families, presents data on income for the native-white unbroken families studied in 5 small cities and 22 villages in the Plains and Mountain states. The median family income was $1,420 in the 5 cities combined, $1,288 in the South Dakota-Montana-Colorado villages, and $918 in the North Dakota-Kansas villages. In each of the 5 cities and in the 2 village units, the highest median incomes were those of the business and professional families; clerical families ranked second, and wage-earner families third. More than 9 out of 10 husbands in the non-relief group were the principal earners, and three fourths or more were the sole support of their families. Families were classified by family type based on number and age of persons other than husband and wife; data on income and responsibility for family support are presented for 5 family-type combinations. Information on living quarters, home tenure, and monthly rental values is also given.

Money disbursements of wage earners and clerical workers in the North Atlantic region, 1934–36. Vol. I, New York City, F. M. WILLIAMS and A. C. HANSON. U. S. Dept. Labor, Bur. Labor Stat., Bull. No. 637 (March 1939) 236 pp.

The data in this bulletin, dealing with 997 families of wage earners and lower-salaried clerical workers in the 5 boroughs of New York City, apply within the period 1934–36. Half of the white families studied had incomes of less than $1,625, and three quarters less than $2,073; family incomes averaged $1,745. Among the Negro families half received less than $1,338. Food, housing, and clothing together comprised 68 per cent of total expenses of the white families and 70 per cent of the Negro. A smaller proportion, 31 per cent as compared to 36 per cent, was spent on food by Negro than by white families. The average number of persons per Negro family was 3.13; per white family, 3.65. Expenditures for housing, fuel, light, and refrigeration averaged $474 for whites and $490 for Negroes. Clothing expenditures, amounting to $202 for whites and $149 for Negroes, were third in importance, followed by expenditures for recreation, transportation, furnishings and equipment, medical care, and others.

Employed women and family support, M. E. PIDGEON and M. T. METTERT. U. S. Dept. Labor, Women's Bur. Bull. No. 168 (1939) 57 pp.

Material in this bulletin, prepared from schedules of the 1930 Census of Occupations, covers the more than 58,000 gainfully employed women 16 years of age and over in Fort Wayne (Indiana), Bridgeport (Connecticut), and Richmond (Virginia). The proportions of women in gainful occupations in these cities were 29.6, 32.7, and 38.8 per cent, respectively, as compared with 25.3 per cent in the United States as a whole. From 10 to 14 per cent of these working women were the sole support of their families, which ranged in size from 2 to more than 10 persons. One third of the women studied combined the tasks and responsibilities of a homemaker with the job of breadwinner.

Consumer demand in Missouri for selected articles of clothing, J. V. COLES. Univ. Mo., Coll. Agr., Research Bull. 300 (May 1939) 58 pp.

This study, an analysis of 2,990 questionnaires, deals with the buying habits of consumers of differing economic status. An effort was made to find out where buyers purchase specific articles of clothing, whether or not they prefer to buy them ready-made, the prices they wish to pay, the qualities they consider important, and the difficulties encountered in buying and using the articles. The majority purchased afternoon dresses and slips ready-made. Under $10 was usually paid for afternoon dresses and less than $1 per yard for materials; for slips, less than $2 was paid for ready-made and less than 75 cents a yard for materials. City buyers as a rule paid higher prices for garments than did small-town buyers with equal incomes. Comfort was considered the most important quality in house dresses and slips; attractiveness, in afternoon dresses.

Consumer demand in Missouri for selected articles of household textiles, J. V. COLES. Univ. Mo., Coll. Agr., Research Bull. 301 (May 1939) 46 pp.

The 2,748 questionnaires obtained in a study of what consumers want when buying specified household textiles provided data on sheets, blankets, window curtains, and towels. The majority of both small-town and city buyers purchased window curtains and bath and hand towels ready-made. Small-town buyers usually paid less than $1.50 per window for ready-made curtains and less than 50 cents per yard for material for living-room curtains; city buyers paid 25 to 50 cents more. Both groups paid less than $1.50 for ready-made sheets and less than 45 cents per yard for sheeting for double beds. City buyers at the same income level as a rule paid higher prices for household textiles than did small-town buyers. Durability was considered the most important quality of sheets, curtains, towels, and part-wool and all-cotton blankets; it was second in importance to warmth in all-wool blankets.

M. L. B.

FOOD COMPOSITION

Contributed by the staff of the Food Composition Section, Bureau of Home Economics, United States Department of Agriculture

Over two thousand estimations of the pH of representative foods, M. A. BRIDGES and M. R. MATTICE. *Am. J. Digestive Diseases* **6**, No. 7 (Sept. 1939) pp. 440–449.

This report covers pH data on over 400 representative foods (raw, cooked, canned, commercial products, and recipe and soda-fountain mixtures) with one to six determinations on each food.

The nutritional availability of iron in molasses, R. S. HARRIS, L. M. MOSHER, and J. W. M. BUNKER. *Am. J. Digestive Diseases* **6**, No. 7 (Sept. 1939) pp. 459–462.

Total and "available" iron were determined in molasses from Louisiana sugar cane, "first," "second," and "third" grades. Chemical analyses give the total iron, in mg. per 100 gms., as 3.2 ± 0.2 for the "first" molasses, 6.0 ± 0.5 for the "second," and 11.3 ± 0.6 for the "third." The available iron was estimated by the α,α'-dipyridyl method and by a rat bio-assay. For the first, second, and third grades, respectively, the available iron was found to be 97, 85, and 54 per cent of the total by the chemical procedure and approximately 90, 80, and 50 per cent by the bio-assay. The close agreement between the results of the chemical and bio-assay methods shows that the dipyridyl procedure is acceptable for the determination of the availability of iron in molasses. Molasses compares favorably with liver in both total and available iron content.

Mineral contents of Chinese foods, C.-Y. CHANG. *Chin. J. Physiol.* **14**, No. 2 (June 1939) pp. 133–145.

One hundred twenty-four edible foods, including fruits, vegetables, vegetable products, cereals, cereal products, nuts, meats, and eggs, were analyzed for the following elements: Ca, Mg, K, Na, P, Cl, S, and Fe. With a few exceptions, the food items are similar to those eaten in the United States.

Nutritional investigations on Bengal fish, K. C. SAHA and B. C. GUHA. *Indian J. Med. Research* **26**, No. 4 (April 1939) pp. 921–927.

The fleshy edible portions of 24 different varieties of Bengal fresh-water fish were analyzed for moisture, fat, protein, total mineral matter, calcium, phosphorus, and ionizable and total iron. Three of these samples included the bones along with the fleshy edible portion.

On copper content of foods, S. C. CHOUDHURY and U. P. BASU. *Indian J. Med. Research* **26**, No. 4 (April 1939) pp. 929–934.

Copper was determined in 35 foodstuffs, including cereals, bread, vegetables, fruits, nuts, milk, and fish, purchased on the open market in Calcutta, India. The Bengali, English, and botanical names are given for the majority of the foods. The authors conclude that the average adult diet consisting of cereals, pulses, nuts, and fish would afford about 3 mg. of copper per day. As this would be more than sufficient to meet the daily copper requirement of 2 mg., proposed by Chou and Adolph, they claim it is unlikely that an adult would suffer from such a deficiency. Because of the low percentage of copper in cow's milk, they believe that the infant dietary should be enriched with a trace of copper salt.

Sui principi immediati e sulla composizione delle ceneri dei principali cereali africani [The proximate and ash constituents of the principal African cereals]: Triticum durum, Zea mais, Hordeum disticum, Sorghum aethiopicum, Eragrostis abyssinica, Pennisetum typhoideum, Eleusine coracana, G. FABRIANI. *Quaderni della Nutrizione* **6**, No. 1 (April 1939) pp. 72–81.

Proximate and mineral (Ca, P, Fe, K, Na, S, Mg, and Cl) analyses were made on 7 grains commonly grown in Italy and its colonies and forming an important part of the diet of their people. These grains—wheat, corn, barley, sorghum, teff, pearl millet, and African millet—are described in some detail.

P. R. A.

FOOD UTILIZATION

Contributed by the staff of the Food Utilization Section, Bureau of Home Economics, United States Department of Agriculture

Potatoes as carriers of vitamin C, M. E. LYONS and C. R. FELLERS. *Am. Potato J.* **16,** No. 7 (July 1939) pp. 169–179.

Eight varieties of potatoes grown at experiment stations throughout the country were analyzed for ascorbic acid immediately after harvest. The indophenol titration method was employed, and a mixture of 2N sulfuric and 2 per cent metaphosphoric acids was used as the extracting medium. Except that Maine-grown Irish Cobbler and Green Mountain potatoes showed only about half to three quarters as much ascorbic acid as the same varieties grown in Massachusetts, variations due to difference of locality of growth were not particularly significant. The Irish Cobbler variety had an average ascorbic acid content of 0.131 mg. per gm.; Katahdin 0.125 mg. per gm.; Green Mountain 0.117 mg. per gm.; and Chippewa lowest, with 0.097 mg. per gm. Green Mountain potatoes analyzed at intervals during growth showed no loss of ascorbic acid with maturity. Cooking by any method caused a marked decrease which depended somewhat on the variety. An average of 40 per cent of the ascorbic acid was lost by boiling whole in the skins and 50 per cent by baking at 450°F. Cold boiled potatoes held at 40°F. for 24 hours lost only 17.5 per cent of their ascorbic acid, and more was conserved in reheating by frying than in creaming. Storage at 55°F. was very destructive of the vitamin, causing a loss of about 50 per cent in 5 months.—L. A. R.

The effect of various temperatures and time periods on the percentage of gelatination of wheat and corn starch and of cereals containing those starches, O. HUGHES, E. GREEN, and L. CAMPBELL. *Cereal Chem.* **15,** No. 6 (Nov. 1938) pp. 795–800.

This study was undertaken to obtain data which might serve as a basis for more definite recommendations than are now possible as to temperatures and time periods required for completely cooking cornstarch, wheat starch, corn meal, and a granular wheat cereal made from the endosperm. High percentages of gelatination were obtained for all products except corn meal. The higher the temperature used, the shorter the period of heating required to obtain gelatination. For instance, 1 per cent and 5 per cent concentrations of cornstarch and wheat starch were 100 per cent gelatinized in one or two minutes of boiling; but when a 5 per cent concentration of these starches was held at 95°C., it required 5 minutes to obtain 95 per cent gelatination. The results seem to confirm the opinion, based on gelatination, digestion, and palatability tests that long cooking periods are not necessary for starches and granular cereals.—E. F. W.

Some observations regarding the flavor of bread, J. C. BAKER and M. D. MIZE. *Cereal Chem.* **16,** No. 2 (March 1939) pp. 295–297.

A method was developed of baking crustless bread in which the dough was heated by being made the resistance between electrodes carrying alternating current. Compared with oven-baked bread, this bread was characterized by a slightly milder flavor, distinctly yeasty in character, and a superior keeping quality. The change in flavor after storage for 3 days at room temperature was very slight. Similar storage of oven-baked bread produced the usual flavors called "stale." Using the crustless bread as a standard, a study was made to find what causes the stale flavor to develop in crust bread. "The flavor products developed in the crust during baking reach the interior of the loaf and are involved in the changes that occur in the flavor of bread during aging and staling. These effects are intensified by the presence of shortening in the crust."—F. B. K.

Problems in meat research. I. Four comparable cuts from one animal. II. Reliability of judges' scores, M. J. SATORIUS and A. M. CHILD. *Food Research* **3,** No. 6 (Nov.–Dec. 1938) pp. 627–635.

On the basis of determinations of press fluid [J. HOME ECON. **27,** 1935, p. 187; **28,** 1936, p. 339; and **31,** 1939, p. 344] in cooked pork,

also total moisture, ether extract, total nitrogen, and total cooking losses, the authors concluded that the rib and loin ends of center cuts could be used as comparable roasts when only physical qualities are to be considered, provided the order of the roasts is rotated. From similar analyses, together with tenderness measurements, on cooked 7–8th, 9–10th, and 11–12th standing ribs of beef, the authors concluded that the 7–8th and 9–10th ribs, when rotated, can be used as comparable cuts in press fluid, tenderness, and cooking-loss determinations.

Reliability of judges' scores was estimated by correlating subjective with objective judgments on cooked longissimus dorsi, adductor, and triceps brachii muscles from cows graded good and from steers graded high-medium to good. Five persons made the subjective judgments, using the grading sheet of the Cooperative Meat Investigations. The objective judgments were the data on press fluid, shear stress [J. HOME ECON. **31**, 1939, p. 344], ether extract, and diameter and number per bundle of muscle fibers. Among other conclusions the authors reported: "The grading sheet is an accurate measure of tenderness, since a high correlation exists between grading-sheet scores and mechanical shear. No correlation is found, however, between quantity of juice as judged by grading-sheet scores and press fluid." Also, coefficients of correlation are presented to show interrelations between factors of palatability as judged according to the grading chart, and interrelations between objective judgments. —L. M. A.

A study of protein extract from soybeans with reference to its use in food, S. WOODRUFF and E. CHAMBERS. *J. Agr. Research* **57**, No. 10 (Nov. 15, 1938) pp. 737–746.

A simple method was found for the extraction of a semi-pure protein from soybeans. The protein substance after precipitation and drying was found to represent about 52.6 per cent of the nitrogen originally present in the soybeans and contained 92 per cent protein on a moisture-free basis. A study of the physical properties of the protein substance showed that it did not possess a thickening or binding property, nor did its presence interfere with the usual reactions of other ingredients in cooking. It was tasteless and unobjectionable as an addition to other foods and might be incorporated in many food dishes for the purpose of adding to their protein content.—F. B. K.

The vitamin content of green string beans when cooked or canned and stored, H. L. MAYFIELD and J. E. RICHARDSON. Mont. State Coll. Agr. Expt. Sta. Bull. No. 373 (June 1939).

The Burpee Stringless Green-Pod bean was tested for vitamins A, B_1, and C when raw, freshly cooked, and stored after canning in a pressure cooker. For purposes of comparison a good brand of commercially canned beans was also tested. Vitamins A and B_1 were determined by biological assay; vitamin C was determined by the chemical method with a few biological assays being run as checks. Cooked green beans with a content of 12 International Units per gm. were a better source of vitamin A than raw beans with a content of 7.5 I. U. per gm. This is probably due to the greater digestibility of the cooked product. After 6 months' storage both the home-canned and commercially canned beans were nearly as rich in the vitamin as the freshly cooked beans. Cooking for 45 minutes caused no loss in the vitamin B_1 potency of the beans, but canned beans stored for 6 months and then reheated for 10 minutes lost about 40 per cent of their vitamin B_1 content. A serving of 70 gm. of freshly cooked green beans would supply 23 I.U. of vitamin B_1, whereas the same amount of reheated canned beans would furnish only 14 I.U. of the vitamin. Raw string beans containing from 0.19 mg. per gm. to 0.27 mg. per gm. of ascorbic acid lost from one third to one half of this quantity when they were cooked, and an additional 10 per cent if they were allowed to stand for an hour after cooking. The loss on storing canned beans for 8 months was between 80 and 85 per cent of that present in the raw beans. The loss due to the canning process itself was no greater than that due to ordinary cooking. Slightly greater destruction of the vitamin occurred in the beans put up in glass than in tin.—L. A. R.

NUTRITION

Contributed by the staff of the Office of Experiment Stations, United States Department of Agriculture

Ascorbic Acid Utilization

A study of the ascorbic acid intake required to maintain tissue saturation in normal adults, W. B. Belser, H. M. Hauck, and C. A. Storvick. *J. Nutr.* **17,** No. 6 (June 10, 1939) pp. 513–526.

The experiments reported were undertaken to determine the minimum intake of ascorbic acid necessary to maintain the body in a fully saturated state with respect to vitamin C. Seven normal adults, 5 men and 2 women, served as subjects. They received a basal diet furnishing approximately 10 mg. of vitamin C daily. The vitamin C supplements furnished during the experimental period were given as synthetic ascorbic acid dissolved in a little water. For 3 days previous to the experimental period each subject received daily, in addition to the usual diet, the juice from 4 to 8 oranges. On this regime the subject became saturated with ascorbic acid, with the result that the urinary excretion on the third day was between 200 and 300 mg. After this preliminary saturation the experimental period was introduced, the object being to determine the minimum daily intake of ascorbic acid necessary to maintain the saturation attained on the orange juice. To this end, a series of successive saturation and test periods were essential, first to determine for each individual a criterion for judging complete saturation and then to determine the minimum vitamin C intake that would still meet this standard. Accordingly, the first experimental period involved the daily intake of 200-mg. supplements over a 4- to 5-day period, followed by a 400-mg. test dose on the sixth day. The response to this test dose, measured in terms of urinary excretion, was taken as the criterion for complete saturation. At least three such periods were studied for each subject in order to determine his own individual standard. In the following periods various lower dosages of ascorbic acid were administered over 6-day periods preliminary to noting the response to the 400-mg. test dose. If the response to this test dose equaled or exceeded the lowest response of the same subject following a period when the supplement was 200 mg. daily, the subject was considered saturated. The results reported represent from 7 to 12 periods for each subject, covering a total time for each of from 5 to 17 months. Of the 7 subjects studied, 2 required daily intakes of between 70 and 85 mg. of ascorbic acid to maintain tissue saturation, 3 required between 85 and 100 mg., and 2 required more than 100 mg. daily. On the basis of body weight, the range in requirement to maintain complete saturation for these subjects was from about 1 to 1.6 mg. per kilogram per day.

Vitamin C requirement of man. Prolonged study of daily excretion and plasma concentration of vitamin C, E. P. Ralli, G. J. Friedman, and S. Sherry. *Proc. Soc. Exptl. Biol. & Med.* **40,** No. 4 (April 1939) pp. 604–605.

Ascorbic acid excretion and plasma levels of two adult males on graded doses of ascorbic acid were followed over long periods. The subjects were placed on a basal diet containing minimum amounts of vitamin C, and the daily ascorbic acid additions were given at regular intervals in divided doses of 50 mg. each. The first subject, observed continuously over 110 days, received 50 mg. of ascorbic acid daily for the first 19 days. On this dose the excretion averaged only 11 $\pm$ 4.6 mg. daily and the plasma level averaged 0.85 mg. For the next 53 days the dosage was increased to 100 mg., resulting in a daily excretion of 20 $\pm$ 2 mg. and a plasma level of 1.12 mg. The dosage was further increased to 200 mg. for 22 days and finally 350 mg. for 16 days. On these higher levels of intake the plasma content of ascorbic acid increased little over the level attained on the 100-mg. intake and the retention of ascorbic acid (the difference between intake and output) amounted to only 91 mg. as compared with an 80-mg. retention on the 100-mg. in-

take. These results were considered as an indication that maximum retention is attained on a daily ascorbic acid intake of 100 mg. Additional evidence favoring this conclusion was obtained with the second subject who was observed, though not continuously, for a total of 191 days. The ascorbic acid additions to the basal diet varied from nil to 100 mg. daily. From the low excretions and low plasma levels noted when no ascorbic acid supplements were given, the values rose as the dosage was increased. During the final period the plasma values rose to 1.43 mg. per 100 cc., and the average daily retention was 90 mg. From these observations the authors conclude that 100 mg. of vitamin C daily represents the optimum intake. At this intake the blood plasma concentration is maintained at or above a level of 1 mg. per 100 cc. If a greater amount of vitamin C is fed, it is excreted in the urine.

A study of vitamin C metabolism in lactating mothers, F. C. CHU, T. WOO, and C. SUNG. *Chin. J. Physiol.* **13,** No. 4 (Dec. 30, 1938) pp. 383–394.

The vitamin C output in the urine and milk of 4 lactating mothers was determined over periods of low vitamin C intake and during test periods when various specified supplements of vitamin C were given. Three of the women whose diets had been low in vitamin C before the experiment began received during the test period amounts of vitamin C equivalent, respectively, to 7.2, 22.2, and 2.4 mg. per kilogram of body weight. Orange juice, pure crystalline ascorbic acid, and cooked cabbage plus raw turnip were the sources of the vitamin in the three cases. With these dietary supplements it required 6, 3, and 15 days, respectively, before the 24-hour urinary excretion exceeded 50 mg., and 11, 7, and 16 days before this excretion reached a maximum which represented in the several cases 58, 58, and 64 per cent of the test dose. For these women in vitamin C depletion the rate at which the urinary peak was reached varied directly with the intake per kilogram of body weight. A fourth patient, however, had been in a state of dietary adequacy before the experiment began and, although she received only 10.1 mg. of ascorbic acid per kilogram of body weight, the urinary response was prompt. It exceeded the 50-mg. level on the second day and reached the peak on the fifth day, at which time 74 per cent of the test dose was excreted. Whereas the urinary response was somewhat delayed, the excretion of the vitamin in the milk increased slowly but steadily with the administration of the vitamin C supplements. Values approximating 8 mg. per 100 cc. of milk were the highest levels attained. This amount apparently represented the "saturation" level. Concentrations of 4 to 6 mg. per 100 cc. were attained, however, when the vitamin C storage of the lactating women was in a satisfactory condition, as judged by urinary response. When the body of the lactating woman was deficient in vitamin C, the concentration in the milk was less than 4 mg. per 100 cc. The vitamin C requirement of one of the lactating women weighing 45 kg., and in a satisfactory nutritive state with regard to this vitamin, was determined as 82 mg. The authors point out that not only rich sources of vitamin C such as orange juice or the pure ascorbic acid sufficed to raise the vitamin C concentration of the milk, but that cheaper sources such as cabbage and turnips were also satisfactory if fed for a slightly longer period.

The vitamin C requirements of pregnant and lactating women [translated title], K. U. TOVERUD. *Ztschr. Vitaminforsch.* **8,** No. 3 (1938–39) pp. 237–248.

A regular diet furnishing 30 mg. of ascorbic acid per day apparently sufficed to meet the requirements of normal nonpregnant women, since 50 per cent of a large test dose of the vitamin, as furnished by ½ liter of orange juice, was eliminated within 24 hours. In this period, however, the pregnant women eliminated only 26 per cent of the ascorbic acid of the test dose and the lactating women only 20 per cent even when the amount excreted in the milk was included. Since so much of the test dose was retained, it appeared that the daily intake of 30 mg. per day had not sufficed to meet the needs of the pregnant and lactating women. The ascorbic acid content of their diets was increased, therefore, to the level of 75 to 100 mg. daily, and after a period on this regime test doses of 200 to 500 mg. of pure

ascorbic acid were given. At this time only a few of the pregnant and none of the lactating women showed a 50 per cent excretion. It was not until the daily intake of ascorbic acid had been increased to 175 to 200 mg. that the pregnant and lactating women gave the 50 per cent excretion of the test dose characteristic of the normal women receiving only 30 mg. daily. Even for the high intake it required 2 to 3 weeks for the pregnant women and 5 to 8 weeks for the lactating women to attain the saturation level. These experiments indicate that the ascorbic acid requirement is much greater for pregnant and lactating women than for normal nonpregnant women. Determinations of the ascorbic acid content of the blood showed values varying from 0.6 to 1.0 mg. per 100 cc. during the saturation period. The breast milk usually showed an increase in its content of ascorbic acid before increased excretion took place in the urine.

The vitamin C exchange between mother and fetus [translated title], J. MULLER. *Klin. Wchnschr.* **18,** No. 9 (March 4, 1939) pp. 299–301.

From a review of the literature on this subject, the author presents the following summary: Vitamin C is not stored in the placenta and there is little possibility of the fetus having the higher ascorbic acid content. Comparative determinations of the vitamin C content of the liver of the mother, of the placenta, and of the liver of the fetus show that, apart from some variable differences, the vitamin C picture in the fetus is the same as in the mother. The findings contradict the assumption that there is synthesis in the fetus. All the vitamin C that the fetus uses is brought to it through the umbilical vein by way of the placenta. Forty references to the literature are appended.

The supplementary value of the banana in institution diets. I. Effect on growth in height and weight, ossification of carpals, and changes in Franzen indices, L. J. ROBERTS, R. BLAIR, G. AUSTIN, and G. STEININGER. II. Capillary resistance and reduced ascorbic acid in the blood plasma, L. J. ROBERTS, M. H. BROOKES, R. BLAIR, G. AUSTIN, and I. NOBLE. *J. Pediat.* **15,** No. 1 (July 1939) pp. 25–42, 43–52.

This study reports the results of supplementing the diet of over 100 boys from 8 to 16 years of age and living in one institution, with 2 to 3 bananas daily for a period of 9 months. The preliminary study of the institution diet indicated that it measured well up to all standards for calcium, phosphorus, and vitamins B_1 and G; met the minimum standards for calories, protein, iron, and vitamin A; but was decidedly questionable in vitamin C. The supplement of 2 bananas daily increased the value of the diet by 8 per cent for calories and vitamin G and by 10 per cent for iron and vitamins A and B_1. A 60 per cent increase in vitamin C represented, however, the significant contribution of the bananas. Performance of the boys receiving bananas was compared with that of a carefully matched control group on the non-supplemented institution diet. As compared with the controls the experimental boys made a slightly greater gain in mean weight (0.90 lb.) and height (0.15 in.) and showed slightly greater progress in ossification of the wrist bones. Although the differences were small, the authors consider that they were probably real, since the findings were obtained on carefully matched groups and were consistent in direction.

In the second study the effect of the banana supplement on the body stores of vitamin C was determined. To this end the capillary resistance of boys in both groups was determined at intervals, and at the end of the study the reduced ascorbic acid in the blood plasma was also determined. The second of these tests was particularly significant. The plasma ascorbic acid for the experimental boys averaged 0.89 mg. per 100 cc. of plasma, whereas the mean for the matched controls was only 0.69 mg. Judging from these results the 2 to 3 bananas furnishing 17 to 26 mg. of ascorbic acid daily served as a dependable source of vitamin C. The authors consider that the liberal use of bananas in institutions of the type studied would be a factor of safety in providing vitamin C in economical and palatable form.

G. A.

HOUSING

Low-cost cooling for residences, C. K. Otis. *Agr. Eng.* **20,** No. 7 (July 1939) pp. 279–282.

The initial cost of installing mechanical air conditioning is so high that most people must look toward simpler and cheaper methods of cooling their homes. In good-sized, well-insulated houses, cooling by night air is practicable during short heat waves simply by keeping the windows closed by day and open during the night. A centrally located opening in the attic floor should provide for the escape of the hot air from below. In houses with hot-air heating systems the attic ventilator may be supplemented by a large fan in the basement which will force outside air to all the rooms through the heating pipes. Further efficiency is obtained by installing a large fan at the opening in the attic floor to force the heat into the attic space and thence through openings to the outside. Another method of cooling the air in a house is by the use of well water, provided its temperature is 60°F. or less. A complete system consists of a well, a water pump, a radiator, a fan or blower, and means of distributing the cool air to the rooms. Ordinary homes use from 4 to 5 gallons of water per minute. In dry regions, such as the Southwest, cooling by evaporation can be used effectively. The window-box cooler, which is the most common device for this, contains some porous material like excelsior, cotton fabric, or coke which is kept wet by a water spray and over or through which air is blown, causing evaporation that cools the air.

Why make service "free"? P. Honing. *Air Conditioning & Oil Heat* **12,** No. 9 (Sept. 1939) pp. 9, 55–57.

Oil burners, like all other mechanical devices, will require service, which may be efficiently rendered by using the same person to sell an oil burner and to service it. Good service is the best way of developing interest in oil burners in a community and leads to new sales. Such a sales engineer cannot be either a "dumb grease ball" or a glib salesman who takes no interest in an oil burner once it is sold. Free service is a misnomer; maintenance must be paid for either in the form of a service contract or in a higher price for fuel.

Basic principles of healthful housing (second edition). Committee on the Hygiene of Housing, American Public Health Association, May 1939, 32 pp.

An enlargement and revision of the preliminary report published last year. The main divisions deal with fundamental physiological needs, fundamental psychological needs, protection against contagion, and protection against accidents. [The pamphlet may be obtained from the A.P.H.A., 50 West 50th Street, New York City, for 25 cents a copy.]

Factory-built homes. *Fed. Home Loan Bank Rev.* **5,** No. 12 (Sept. 1939) pp. 373–375.

With the experimental period successfully completed, prefabricated all-steel houses will be put on the market for sale to builders, contractors, and large-volume purchasers. They utilize prefabricated panels and sections of steel by a system developed by the Tennessee Coal, Iron and Railroad Company in co-operation with the Farm Security Administration. The main house is all steel except for floors, doors, and interior wall finish. The outbuildings are entirely of steel. Costs of completed buildings range from $1,700 to $1,900 for dwellings, $700 to $900 for barns, $150 and $140 respectively for poultry and smoke houses, and $55 for privies. Specially constructed trucks bring the prefabricated sections to the building site. Unskilled labor can be used to assemble the parts. Floor joists, wall panels, and interior partition frames are bolted or interlocked to the steel footing plate. The panels may be combined to give considerable variation in appearance. Steel construction provides maximum protection against fire, lightning, weather, and vermin. Rust is prevented by the use of high-grade alloys and coatings. No fire insurance need be carried. Buildings can be easily dismantled, moved, and re-erected.

"Basic houses": $1600–$2600. *Housing-Index-Digest* **2,** No. 18 (July 15, 1939) p. 2. [Abstracted from *Bus. Wk.*, No. 516 (July 22, 1939) pp. 20–22.]

Four Hooss brothers of Hammond, Indiana, stumbled on the plan of selling unfinished

houses to people, who move in and finish their homes in their spare time. The Hooss project is about 8 miles out of town, and to date 42 houses have been built and sold.

Ohio authorities confer on management. *Housing Mgt. Bull.* **2,** No. 6 (Aug. 10, 1939) p. 21.

In a report submitted to a meeting of Ohio housing authorities the following points were emphasized: (1) The program for training management personnel should include not only persons who are to manage projects but also maintenance superintendents and tenant relations counselors. (2) A housing project should supply adequate space for tenant community activities, and there should be a person on the management staff with the necessary background to co-ordinate the program, which should be conducted by some outside agency, such as a settlement house or public recreation department. (3) More of the work of maintenance must be made to devolve on tenants if rents in the new projects are to be substantially lower. It should begin at the very opening of the project and include such work as maintenance of back yards and sidewalks. (4) Charging an employee "economic rent" to live on the project is really penalizing him for being on the job 24 hours a day and rendering extra service. He should either be allowed to pay the same rent as other tenants or he should receive additional compensation in order to meet the economic rent. (5) Coal, paint, and other items used in large quantities might be procured more advantageously by collective purchasing by housing authorities.

Managers' Division. *Housing Mgt. Bull.* **2,** No. 6 (Aug. 10, 1939) p. 24.

The proposed constitution and bylaws of the Managers' Division of the National Association of Housing Officials are now ready for adoption. Its committee on training has outlined three types of training needed for management personnel: (1) brief regional seminars to give a minimum of training to personnel for projects nearing completion; (2) in-service training by correspondence or brief conferences for management staffs already on duty; (3) long-range programs, possibly as part of university curricula, for preparing potential management personnel.

The new national census of housing. *Insured Mortgage Portfolio* **4,** No. 3 (Sept. 1939) pp. 15, 27.

A national housing census will be taken in conjunction with the regular 1940 census "to provide information concerning the number, characteristics (including utilities and equipment) and geographical distribution of dwelling structures and dwelling units in the United States." The lack of such facts has long handicapped measurement of mortgage risks and the evaluation of local real estate markets. The data compiled should also be useful to manufacturers of building materials and equipment. The importance of the census is indicated by the fact that investment in housing represents one fourth of the national wealth and that the federal government has an interest of some $10,000,000,000 in real estate loans, commitments, or guarantees.

Housing of dependent aged. *Mthly. Labor Rev.* **49,** No. 2 (Aug. 1939) pp. 295–301.

The old-age assistance now in effect is not enough to provide full support for the recipient, and the homeless, single aged men and women present a serious problem. It has been found that by pooling their resources groups of recipients have been able to provide all the necessaries and some additional comforts. Among the new methods of housing are apartments for the aged, co-operative houses or resident clubs, boarding homes, and colonies of individual dwellings. Increased housing facilities might be obtained by reconditioning old homes or estates, by adapting institutions formerly used for children but less needed for them under modern forms of child care, and by establishing the eligibility of the aged to assistance under the federal housing program. On the West Coast there are promising examples of co-operative houses for the aged, designed for persons who retain a considerable degree of bodily vigor. Boarding homes may be private nonprofit institutions, private homes sheltering one or two aged as a means of eking out the family income, or larger establishments caring for pensioners as a business and for a

profit. The latter show signs of becoming a serious problem, since the living standards may be reduced to the almshouse level in order to secure a profit for the manager. With federal aid, Cumberland County, New Jersey, has built a colony of 13 cottages and a community building for recipients of old-age assistance. Double dwellings rent for $7 a month, single dwellings for $5. They are equipped with gas stove, kitchen range for cooking and heating, electricity, and sewer system. The colony is managed by an experienced social worker, and there is always a waiting list. The manager estimates that for adequate maintenance the number of cottages should be at least 50.

USHA program retarded. *NAHO News* [*National Association of Housing Officials*] **2,** No. 7 (Aug. 8, 1939) p. 56.

The U. S. House of Representatives on August 3 refused to call up for a vote a bill to amend the U. S. Housing Act of 1937, thus preventing for the time being any extension of the housing program. It is reasonably safe to assume that the action of the House represents a turning point in the American public housing program. From now on, the program may depend more and more on an informed public opinion and less and less on the policies of the executive branch of the government. A breathing spell may, however, prove useful. Local communities will have a better chance than heretofore to lay careful plans for their own or federally aided housing activities. The local administration of housing agencies can be made more nearly adequate. The U. S. Housing Authority will have time to establish an efficient pattern of administration and to complete the shift of authority to local public housing agencies.

Mr. Arnold unlocks housing. *NAHO News* [*National Association of Housing Officials*] **2,** No. 8 (Sept. 20, 1939) p. 69.

Assistant Attorney General Arnold is the first person to conceive of hitting at abuses throughout the housing industry at once and everywhere. The estimated 30,000 parts that make up an average house, together with labor and land, come from an uncounted number of small and large concerns. Attacks on monopolistic combinations have hitherto been made in the discouraging knowledge that if the sewer-pipe ring were smashed, the resulting drop in the price of sewer pipe would instantly be swallowed up by price increases in sand, gravel, concrete, brick. Mr. Arnold's forthcoming indictments are only part of the administration's latest efforts to create housing for low-income families. It was decided to move on four fronts: hearings by the Temporary National Economic Committee, antitrust suits, reduction in mortgage rates by the Federal Housing Administration, and increased funds for the U. S. Housing Administration [see preceding abstract]. Sixty lawyers from the U. S. Department of Justice have been working in 10 cities preparing antitrust indictments which are expected soon to fall on the housing industry like snowflakes in winter. According to Mr. Arnold, many members of the industry have thanked him privately for threatening to indict it, and several heads of individual companies voluntarily exposed themselves to prosecution to aid the government.

Housing for the masses "a great frontier," A. W. Binns. *Natl. Real Estate J.* **40,** No. 9 (Aug. 1939) pp. 30–33, 56.

A study of the buying power of prospective homeowners in the Philadelphia region shows that most of the houses being built miss the market because they are too expensive. The great housing needs of the low-income groups can only be met by controlled and managed rental housing, privately owned and operated by an organization which might be called "a socialized utility in housing." The writer, a realtor in Philadelphia, started 10 years ago by buying up old houses and repairing them to provide sound housing at low cost. Three hundred units have been bought at a total cost, including modernization, of between $1,000 and $1,500 for each 5-room house. With rentals at $4 per room per month, the financial return has been 10 per cent and vacancies and losses have been less than 1 per cent. There are about 20,000 houses, mostly 2-story brick dwellings, in Philadelphia that might be available for such modernization;

they can probably be had for from $200 to $300 each.

Zoning round table, E. M. BASSETT. *Planning & Civic Comment* **5,** No. 3 (July–Sept. 1939) pp. 8–9.

How generous can a council afford to be in establishing the zoning regulations of the highest class residential district? Many recently zoned cities would laugh at the generosity of the regulations in New York City, where buildings such as boardinghouses, hotels, clubs, schools, churches, libraries, courthouses, philanthropic institutions, also farming and truck gardening, have been allowed in the best residential districts for 23 years without noticeable injury to residential property. An almost insoluble zoning problem throughout the country is that of the large, well-built private house set in ample grounds in the best residential districts which comes on the market. It often stands vacant because neighbors object to its being remodeled for the use of several families, since the neighborhood is zoned for one-family dwellings. For example, a Long Island mansion of 100 rooms on which annual taxes were $25,000 stood unsold for some years until it was finally bought by a nonprofit organization as a vacation resort for the families of New York City street cleaners. As such, it will probably become tax-exempt. Too tight zoning regulations seem to account for this situation.

17th International Housing and Town Planning Congress, E. L. WOOD. *Pub. Housing Progress* **5,** No. 7 (Aug.–Sept. 1939) p. 4.

The Congress brought several hundred representatives of 30-odd nations to Stockholm between July 9 and 15. Through excursions the visitors studied the results of over 30 years of municipal land acquisition, development, and ownership, as well as the enlightened control of private building by the city planning authorities; of a 15-year partnership between building co-operatives and the government; of the "self-help" home fostered by the city housing department; and of the recent Swedish policy of subsidizing the rent of large families to prevent overcrowding, which is the great defect of Swedish housing. The discussions indicated that European nations have advanced further than we in their housing thought but not in their traffic control. Many European housing experts think of the United States as leading the way in regional and national planning, basing the opinion on the studies and reports of the National Resources Committee and experiments in regional planning, chiefly that in the Tennessee Valley.

What housing means to teachers, N. STRAUS. *School Life* **24,** No. 9 (June 1939) pp. 258–259, 280.

We have long regarded money spent for public education as an essentially sound investment. Yet many teachers in visiting the homes of students have felt a keen sense of futility when they came face to face with the power of a poor neighborhood to destroy the intelligent concepts of citizenship which they so carefully struggle to form. A youngster's most lasting impressions often are formed at home or in the home neighborhood, and some 10 million American families now live in slums which lack the essentials of decent housing and in which life may be mean and hard but certainly not dull. The U. S. Housing Act now provides public assistance to American communities for the destruction of slums and the building of decent homes for people who have been used to living in slums. Private enterprise cannot profitably build good houses to rent for less than $30 a month, and the people who need better housing can afford no more than about $15 a month. It is, therefore, up to public agencies to bridge the difference. Some 233 communities throughout the country have now set up local housing authorities, and over 100 communities have signed loan contracts with the U.S.H.A. When the present program is completed, half a million people will have been rehoused in new houses and in new well-planned communities. Teachers who come into daily contact with children are excellently equipped to tell housing authorities what local housing conditions are and can give intelligent co-operation in solving the housing problem.

M. C. H.

INSTITUTION ADMINISTRATION

Bacteriological tests on mechanical dishwashers for home use, W. E. WARD and G. M. DACK. *Am. J. Pub. Health* **29,** No. 10 (Oct. 1939) pp. 1114–1118.

Results of tests on two types of mechanical dishwashers for home use indicate that the number of residual bacteria is apparently reduced by a mechanical washing-away action and not by the temperature of the water or the germicidal effect of the detergents. Although dishes washed in the two machines with the use of Calgonite and trisodiumphosphate as the detergents were not sterile, they had fewer residual bacteria than dishes washed by hand. The ideal dishwasher, namely one that will remove all pathogenic organisms, has not yet been produced.

Here's how you can avoid legal liability, L. T. PARKER. *Am. Restaurant Mag.* **23,** No. 9 (Sept. 1939) pp. 32–33, 90+.

This, the first of a series of articles on legal problems of restaurants and ways of avoiding the losses which they entail, deals with injuries to patrons. Although it is well recognized at law that a restaurant owner is not an insurer of the safety of his patrons who are lawfully on the premises, he is required to use at least ordinary care to safeguard them against accidents. Periodical inspections of the premises are suggested so that the taking of "ordinary care" can be proved in case of an accident. Court cases are cited which indicate specifically the rights of patrons and the responsibility of the operators.

Forecasting portion costs, G. L. Wenzel. *Am. Restaurant Mag.* **23,** No. 9 (Sept. 1939) pp. 47, 103+.

The main reason for lack of success in the restaurant industry is failure to recognize the importance of food-cost control. Of cardinal importance is to know when to buy, especially to know when canned merchandise should be given preference over fresh or frozen products and vice versa. A difference in cost of one cent per portion where three vegetables are served on a plate adds three cents to the cost of each plate. To forecast portion costs quickly, the use of a manual which gives the portion cost of every meat, sea food, poultry, vegetable, fruit, and dessert item on the menu is very helpful. Charts are given showing how to work out such a manual. The value and means of forecasting price changes are minutely discussed.

The Cleveland school lunchrooms, M. HEMMERSBAUGH. *Am. School Bd. J.* **99,** No. 1 (July 1939) pp. 22–24; No. 2 (Aug. 1939) pp. 23–26.

The first of these two articles is on the organization of the 37 lunchrooms of the Cleveland public schools, all of which aim to operate without either profit or loss and emphasize contributions of the service to the educational program of the schools. Lunchroom managers must have certain academic training and also a regular teaching certificate. Qualifications for managers, conditions of employment, equipment, and the experimental kitchen are definitely planned to minimize expenses and insure food-cost control.

The second article defines the twofold aim of the lunchrooms: (1) to do an efficient, immediate job of serving food every day; (2) to train students in good eating habits, the prevention of malnutrition, and the furtherance of positive health. This health objective is reflected in the procedures regarding menu planning, purchasing, financial management, training of employees on the job, cleanliness, and sanitation. Meetings of cafeteria employees are often held, and managers are supplied with a manual which includes chapters on personnel, equipment, food and supplies, and special services.

Thirty-three operating tips, L. KAYTON. *Bldgs. & Bldg. Mgt.* **29,** No. 8 (July 1939) pp. 32–35, 67–71.

The practical and helpful suggestions here presented were collected from nearly 60 building managers and owners in all parts of the United States for a talk given by the author before the National Association of Building Owners and Managers. Some of the problems treated are the care of Venetian blinds (clean-

ing, washing, waxing, dusting), cleaning elevator shafts, polishing waxed floors, nailing carpet on concrete, opening clogged drains, wall washing, floor finishing, push-button shields, and vibration control.

Does management make full use of accounting? C. COLLINS. *Club Mgt.* **9,** No. 5 (May 1939) pp. 13–14+.

Many problems confronting management in relation to accounting are less troublesome if one remembers that accounting is not an end in itself but a device by which information is secured from the inside of a business to help guide it and to formulate policies of operation. It serves to assist management in fixing responsibility, in budgeting, and in providing statistical facts.

Canners standardize fruit and vegetable cans [editorial]. *Food Ind.* **11,** No. 5 (May 1939) p. 260.

Fruits and vegetables will now be packed in a limited number of can sizes under the new standards fixed voluntarily by the National Canners Association. Seventeen can sizes will account for about 92 per cent of the containers used. In addition, 16 sizes will be used for certain special commodities requiring peculiar dimensions. This forward step has two important advantages: that cans looking alike will actually be the same size and that the cost of cans will be reduced to a minimum.

Tentative standards for frozen peas—including color [editorial]. *Food Ind.* **11,** No. 7 (July 1939) pp. 381–384.

A tentative program for defining and grading frozen peas has been prepared by the U. S. Department of Agriculture. It is effective for one year beginning May 25, 1939. Explanation of terms used is given, plus a score sheet for grade rating. The color, absence of defects, and the tenderness and maturity of the peas are the primary bases for ascertaining the grade group.

Removing bacteria from dishes [editorial]. *Food Ind.* **11,** No. 7 (July 1939) p. 421.

Tests made in the washing of soiled dishes show that apparently low bacterial counts can be obtained when detergents are used which form a film on the surface that entraps the bacteria, although they are still present and alive; however, if the film is scratched they are released and a high count is the result. If, on the other hand, a detergent is used which does not form a film, (sodium metaphosphate, for example, which forms soluble ionic complexes with calcium and magnesium), the bacteria on the dishes are washed away in the rinsing.

Job analyses of the housekeeping department in a 100-bed hospital, M. G. PAGE. *Hosp. Mgt.* **48,** No. 1 (July 1939) pp. 46–48.

Analyzing the jobs of any group of employees means a study of all conditions affecting each employee and his work. This article discusses in detail the job analyses on which are based the rules and regulations in effect at Henrotin Hospital, Chicago. They include those of painter, wall washer, window washer, floor-maintenance man, floor maids, attendants, linen-room attendant, and seamstress.

Selection and maintenance of institutional food equipment, S. STREIT. *Hosp. Mgt.* **48,** No. 2 (Aug. 1939) pp. 43–44.

In the selection of food service equipment, factors to consider are: (1) the needs of the particular institution; (2) the necessity for correct engineering; (3) the cost of operation, upkeep and care; (4) the amount of money available for purchasing equipment. The case is cited of a refrigeration unit which was installed at the cost of $6,300 but for which in 9 years the total cost was brought up to $10,600 by necessary repairs and maintenance expenses.

The sewing room, C. THAUWALD. *Hospitals* **13,** No. 8 (Aug. 1939) p. 110.

The housekeeper and the seamstress working together can find many ways of prolonging the life of hospital linens. Methods in use at the Midway Hospital, St. Paul, are: making napkins from discarded table linen, making pillow covers for the employees' home from discarded bedspreads, re-enforcing the corners of feather pillows with ticking sewed on the inner side, making potholders from discarded

mattress pads. Discarded materials used for cleaning cloths are dyed blue to be easily distinguishable. A marking ink with a silver base is used which lasts the lifetime of the articles. It is recommended that a complete record be kept of all pieces made, mended, and discarded, and that inventories be taken of all items.

Frozen foods [editorial]. *Hospitals* **13,** No. 10 (Oct. 1939) p. 92.

The availability of many fruits and vegetables in frozen forms simplifies menu making by freeing the dietitian from necessity of last-minute changes caused by sudden fluctuations in the market supply or price. The grower delays the harvesting of products that are to be frozen until they have reached their best quality. Experiments indicate the vitamin loss in frozen peas is less than in fresh ones harvested one day and delivered the next. The variety in the size of packages in which frozen foods are marketed may also result in more economical purchasing; besides the 12-ounce size, frozen vegetables are usually available in from 5- to 10-pound packages and fruits in from 10- to 15- and in some cases from 30- to 50-pound packages. Poultry freezing plants normally produce for interstate commerce, which brings them under the meat inspection regulations of the U. S. Department of Agriculture and thus assures quality and correct labeling.

The high cost of old equipment [editorial]. *Hotel Mthly.* **47,** No. 558 (Sept. 1939) pp. 5–6.

A discussion of the savings possible through the installation of modern kitchen equipment, as well as the improvement of products and increase in customer satisfaction. By substituting new equipment with thermostatic control for antiquated, non-insulated, and controlless bake ovens, heavy-duty ranges, steam tables, and coffee urns, a saving of from 10 to 60 per cent can be made in the cost of fuel, with assurance of even temperatures and less spoilage of food.

Is price the index to economy? [editorial]. *Hotel Mthly.* **47,** No. 558 (Sept. 1939) p. 8.

A discussion of the relative advantages of bed sheets of different qualities shows that the correct conclusion is difficult to arrive at. If the answer is yes to the question "Is it cheaper to use percale sheets?", there remains the problem of maintaining proper control. According to housekeepers and those in the linen business, the principal reason for failure of sheets to give the expected wear is inability to control laundry operations.

Agricultural market service [editorial]. *Hotel Mthly.* **47,** No. 558 (Sept. 1939) p. 64.

A simplified system of grading and marking beef has been put into practice by the government. U. S. Prime replaces U. S. Prime Steer, U. S. Prime Heifer, and U. S. Prime Yearling. U. S. Choice replaces U. S. Choice Steer, U. S. Choice Heifer, and U. S. Choice Yearling. U. S. Good replaces U. S. Good Steer, U. S. Good Heifer, and U. S. Good Yearling. Two new grades have been added: U. S. Commercial, equivalent to what used to be Medium Steer, and U. S. Utility to be used on young cows. The initials BAE have been replaced by AMS (Agricultural Marketing Service). The objectives of the revised standards are: (1) to provide grading that will aid the consumer in selection and be easily understood by him; (2) to provide a system that correlates with the so-called Institute system and therefore promotes unified grading; (3) to identify each grade by names that are neither objectionable nor misleading to the consumer.

The college and university training of the dietitian, F. W. Gleiser. *J. Am. Dietetic Assocn.* **15,** No. 7 (Aug.–Sept. 1939) pp. 558–563.

In this discussion of the aims of the extra-academic programs offered in addition to the regular requirements of a dietetic major, the five points stressed are: (1) a system of student counseling; (2) an orientation course that will help the student find the work wherein her talents and interests will bring the greatest satisfaction; (3) rating of personality traits, characteristics, and ability; (4) hospital experience for students during summer vacations, (5) presentation of the subject of each course in a way that will indicate its practical application and increase its value. Continued co-

operation between the school personnel and dietitians in the field will bring the most effective results in university training which feels concern for "the whole individual and not the mind alone."

Educating executive housekeepers, A. M. LaBelle. *Modern Hosp.* **53,** No. 1 (July 1939) pp. 82–84.

With increased demand for specialists in every occupation, institutional housekeeping has felt a serious need for better trained personnel. Educational background should include some university or collegiate training. It is recommended that a student serve an apprenticeship of perhaps one year. The duties and responsibilities involve contacts with the administration and also with personnel. Among demands on the executive are consideration of purchasing and front office and engineering questions. In a Chicago survey of 117 hospitals, 75 reported salary schedules ranging from $40 to $250 a month, usually including maintenance.

Food weights and measures [editorial]. *Restaurant Mgt.* **45,** No. 2 (Aug. 1939) pp. 23, 40+.

This is a comprehensive alphabetical list of practically all food products, accompanied by a table for converting weights in ounces and pounds to measures in cups or portions. Valuable to the buyer and also in figuring connected with food preparation.

Restaurant cost chart [editorial]. *Restaurant Mgt.* **45,** No. 3 (Sept. 1939) p. 14.

Of the 5,000 new restaurants open each year, 75 per cent fail or change hands within 12 months, mainly because of lack of knowledge regarding costs. Figures obtained from a group of successful restaurants show that the highest percentage of profit is earned by soda fountains and cafeterias. The food-cost percentages in 5 types of establishments (calculated before credits for employees' meals were deducted) are: soda lunch, 37; tearoom, 39; cafeteria, 39; lunchroom, 43; and restaurants with full table service, 38. Figures are also given for the cost of advertising, interest and depreciation, insurance taxes, licenses, and other expenses.

Central bake shop effects economies in college food service, M. C. Little. *School & Coll. Cafeteria* **3,** No. 1 (Sept. 1939) pp. 7–8+.

The author advocates a centralized system of management with a central bake shop for feeding college students who live in separate dormitories. The advantages stated are: (1) control of the quality of the food; (2) control of sanitation during production and delivery; (3) having the supply when needed; (4) use of standardized recipes, giving uniform products; (5) facilities for supplying extra foods for special occasions; (6) improvement of menus by greater variety. Adequate space is required not only for the bake shop but also for storage, packing, and refrigeration. A freezing room is very desirable. A list is given of bake-shop equipment in actual use in a college serving 1,000 people daily. Suggestions for bakery products are also given, and a short discussion of the types of employees required and available.

Employee training proves its value in Evansville schools, M. E. Hallett. *School & Coll. Cafeteria* **3,** No. 1 (Sept. 1939) pp. 9–10, 29.

In Evansville, Illinois, last year a representative of the State Department of Vocational Education co-operated in helping organize classes for school cafeteria employees conducted in the same manner as other trade extension courses. Three-hour classes were held one evening a week for 16 weeks. The demonstration method of teaching was used, and in the latter part of the course the employees participated in some preparations. Commercial concerns aided in demonstrations, films were shown, and time and motion studies were made. The course was considered a success, and the interest and progress of employees in their cafeteria work has been an asset to the schools.

M. S.
M. de G. B.

MISCELLANY

News About Public Housing. Anyone who wishes to keep up with what is happening in the abolition of slums and the provision for low-rent housing will welcome the weekly newsletter "Public Housing" which the U. S. Housing Authority began issuing on August 11. It gives the news about state and local developments, conferences, publications, legislation. It may be ordered from the Superintendent of Documents, Washington, D. C., for 5 cents a copy or $1 a year.

Education of the Public in Health. A 2-year postgraduate course, designed especially for supervisors of education in health, is offered this year by the Harvard School of Public Health. According to *School and Society* for August 5, it is built up around the theory that a knowledge of anatomy, physiology, and the fundamental medical sciences and a familiarity with public health procedures are basic for such work. The plan for the course is flexible, to fit the needs of individual students, who may be assigned to work in several of the special schools of Harvard University.

Children's Body Measurements. The standard system for determining the sizes of children's garments and patterns which the textile division of the U. S. Bureau of Home Economics recommends on the basis of its four million and more measurements of 133,807 American boys and girls all over the country is described by Ruth O'Brien and Meyer A. Girshick in U.S. Department of Agriculture Misc. Publ. No. 365. As most home economists probably know already, the study was a W.P.A. project supervised by the Bureau and the proposed system is based on height and girth of hips, the measurements which statistical analysis showed to be most trustworthy. The present report is of interest to the trade and to special students rather than to the ordinary consumer. It may be purchased from the Superintendent of Documents, Washington, D. C., for 20 cents a copy.

Women at Work. The New York Career Tours Committee, 353 West 57th Street, New York City, announces that the price of *Women at Work* has been reduced to 50 cents a copy, lower rates for quantity orders. The book, which tells about what women are doing in different lines of work and which was gotten out in connection with the New York World's Fair, was noted in the June Miscellany.

Social and Economic Information for Home Economics Educators. Much help in making use of the available literature on social and economic subjects of importance to home economics educators is provided by the "Socio-economic Research Abstract Series of the Home Economics Education Service," a series of multigraphed publications prepared by Eleanor L. Richie. Those so far available are: Federal Security Agency, Office of Education Misc. 2230–2, August 1939, "Family Income Distribution as a Guide in Planning Home Economics Teaching Programs"; Misc. 2230–1-B, August 1939, "Sources of Reports, Abstracts, Summaries and News Notes on Socioeconomic Research of Interest in Home Economics Education"; and Misc. 2230–1-A, September 1939, "Social and Economic Information Needs in Home Economics Education."

From the Business-Consumer Relations Conference. The National Better Business Bureau, Inc., Chrysler Building, New York City, has issued a leaflet, "For the Improvement of Business-Consumer Relations," which attempts to outline the suggestions made at the conference called by the National Association of Better Business Bureaus in Buffalo last June (see page 477 of the September JOURNAL). Suggested services from business fall under the headings of co-operation with educators, with consumer groups, and with industrial groups and reports to business.

American Retail Federation. The Federation, 1627 K Street, N. W., Washington, D. C., has published in an attractive pamphlet the speeches given at "The First Retailers' National Forum" which it held in Washington, D. C., May 22 and 23. As was indicated editorially in the September JOURNAL, several of

the speeches at one session were of real significance to the consumer movement. Copies of the pamphlet may be obtained from the Federation for 50 cents each.

Idle Words. In discussing "The Author's Manuscript" in its September *Kalends*, the Waverly Press (which prints the JOURNAL OF HOME ECONOMICS) devotes a paragraph or two to "verbal bums"—superfluous words as in "The question as to whether or not" instead of "The question whether." It says "By repeated test, idle words run from 10 to 30 per cent of the total number of words in a manuscript—unless elimination has been practiced, or the author is singularly blessed with a very compact style. It is certainly no exaggeration to assert that at least 15 per cent of the words in print, this year of grace, are idle."

A Community Forest. One of the oldest forests operated for the profit of a community in this country is the 75-acre one of Danville, New Hampshire. It dates from before the Revolution and, according to a release from the U. S. Department of Agriculture, in the last 100 years it has added $33,000 to the community's funds.

Clothiers to the Antarctic Explorers. Alaskan Eskimos have been set to work under the direction of the Office of Indian Affairs to make fur hoods and boots for the U. S. Antarctic Expedition, says *Science News Letter*, and Boston sailmakers are making other clothing of light, wind-resistant cotton airplane fabric.

School and Society. On September 1, Dr. William C. Bagley, professor of education at Teachers College, Columbia University, succeeded Dr. J. McKeen Cattell as editor of *School and Society*. Dr. Cattell founded the weekly in 1915 and was its first and until now its only editor.

Mickey Mouse and Westinghouse. We are strong for "glamour," or whatever you wish to call it, in advertising when it is like that in the Westinghouse ad in a recent business weekly. What the company wanted to do was to tell the world it makes plastics for all kinds of purposes, including, incidentally, children's dishes decorated à la Walter Disney. So it heads its copy "How Mickey Mouse Joined Our Family" and catches your interest with the amusing idea of such a connection. Result: you enjoy the information that follows and learn unforgettably that the company has done its part in developing our versatile plastic industry.

Carpets. Samples of twelve different types of carpets are included in the Carpet Sample Exhibit which can be borrowed for one month by writing The Hoover Company, Home Economics Department, North Canton, Ohio. The date on which the borrower wants the exhibit to reach him should be stated. Return postage and insurance are the only charges.

"Diets." Dr. Kate Daum of the department of nutrition, State University of Iowa, is the author of a 74-page multigraphed manual for the use of students and dietitians, a revised edition of which has recently been issued by the Williams Surgical Supply Company, Iowa City. The price is $1.

The Survey Graphic on Schools. Following the "Calling America" issue which met with such amazing success last winter, the Survey Associates have devoted the October issue of the *Survey Graphic* to "Schools: The Challenge of Democracy to Education." The editor in charge was Beulah Amidon, and 31 expert educators and journalists joined in the discussion of "What Is Education?", "The Schools We Keep," "Where We Must Take Hold," and "Answering the Challenge." Nonsubscribers who wish this special number may purchase it for 40 cents from Survey Associates, 112 East 19th Street, New York City.

Prenatal Care. A revision of the Children's Bureau's well-known bulletin "Standards of Prenatal Care" has been issued as U. S. Department of Labor, Children's Bureau Publ. No. 153. Although described on the cover as "an outline for the use of physicians," the bulletin is much used by social workers and others who work with low-income families.

NEWS NOTES

GENERAL

Summer Play Schools Association. The Child Study Association of America and the Summer Play Schools Committee announced that beginning October 1 the Summer Play Schools Committee will carry on its work separately, incorporated under the name of Summer Play Schools Association, with headquarters located at 1841 Broadway, New York City.

Conference on Distribution. Although the program of the 11th Boston Conference on Distribution on October 2 and 3 may not have included so many direct references to consumer interests as the conferences of the previous two or three years, there were several papers that bore on such problems, notably perhaps J. Frederic Dewhurst's discussion of the Twentieth Century Fund study of distribution costs (see page 714) and one on advertising by Paul Hollister, executive vice-president of R. H. Macy & Co. Organizations in these conferences include leading university and college schools of business administration, associations of advertisers and retailers, and chambers of commerce.

National Safety Congress. During the annual congress of the National Safety Council in Atlantic City, October 16 to 20, the Home Safety Committee and the Child Education Section held a joint session on Thursday morning. Rosamond Losh of Kansas City presided, and among the speakers was Dean Mary L. Matthews of the School of Home Economics, Purdue University.

Mrs. Burdick's Retirement. Her many friends in the home economics world will join her colleagues in the U. S. Office of Education in congratulations and good wishes to Mrs. Anna Lalor Burdick on her retirement on September 30 after 50 years of continuous work in the field of education and 22 years with the federal program of vocational education. Although technically agent for trade and industrial work for girls and women, Mrs. Burdick contributed much to the whole vocational education program, including such homemaking phases as household employment. Mrs. Burdick hopes now to devote more time to her work as trustee of the Lalor Foundation to promote scientific research and the arts.

"Gallant American Women." Beginning on October 31, half-hour radio dramas about the contributions of women, both famous and "unsung," to the development of American life and thought, are being broadcast on Tuesday afternoons at 2 p.m., E.S.T., over the N.B.C. Blue Network. These are part of the radio program of the U. S. Office of Education which co-operates with the W.P.A. and the Women's Division of the N.B.C. in preparing them.

Women's Engineering Society. Miss Caroline Haslett, an Englishwoman known to many home economists in this country for her fine work as director of the Electrical Association for Women, has been elected president of the Women's Engineering Society, of which the E.A.W. was an offshoot. The announcement of the election says it is a "recognition of Miss Haslett's untiring devotion in the cause of women, of her tremendous energy and of a personality freely given in their service."

NEW HAMPSHIRE

New Hampshire Home Economics Association. The annual meeting in Keene on October 19 began in the forenoon with a business session. Luncheon was served by the ladies of the First Congregational Church. In the afternoon, Alida Fairbanks, home economics supervisor in the public schools in Vermont, discussed "Modern Trends in Home Economics Development," and Margaret George of the Museum of Fine Arts in Boston spoke on "Harmonizing Period Furniture."

The exhibits included new electrical equip-

ment, some of the latest home economics books displayed through the co-operation of the State Public Library Association, the collection of shawls owned by Daisy Deane Williamson, and exhibits from A.H.E.A. headquarters.

As a pleasant ending to a busy day, the home economics department of Keene Normal School entertained at tea.

University of New Hampshire. Lois E. Harrington, who formerly taught in Derby and Northfield and at the University of Vermont, has succeeded Marion Bailey as instructor in foods; and Lucile Pepoon has succeeded Margaret Karr as instructor in home economics in charge of the practice house. Miss Pepoon has taught in Douglas, Alaska, and in the Canal Zone, and has done extension work in Iowa.

Sigrid Hangus, an alumna and former assistant dietitian at the State Hospital in Concord, has been appointed assistant manager of the Commons Dining Hall and teaches quantity cookery and institutional management.

Extension Service. Rena Gray, home demonstration agent in Belknap County, is on six months' sabbatical leave for study and travel in South America. Ruth Smith, home demonstration agent-at-large, is now serving in Belknap County.

Nancy Powers, formerly home demonstration agent-at-large, has been appointed agent in Carroll County to succeed Nancy Carlisle, now Mrs. Henry Roberts.

NEW MEXICO

New Mexico Home Economics Association. Maud Williamson of Colorado State College was the principal speaker at the annual meeting at Albuquerque on October 27. At the close of her talk on "Stimulating Effective Teaching of Consumer Education Through Recent Materials Dealing with Social and Economic Conditions and Consumer Practice" came several group discussions based on it.

New Mexico Normal University. The home economics department's new co-operative house, under the direction and supervision of Grace Spoelstra, is at present housing 10 girls, but 20 are expected by the opening of the winter quarter.

New Mexico State College. Helen Moser, who has been teaching high school home economics in the state for several years, is in charge of the teacher-training and home management work.

New Mexico State Teachers College. Teachers who have taken the recently added courses in child development and field work in nutrition report themselves now much better equipped to assist with the problem of malnutrition in school children by building an educational corrective program.

Extension Service. "Service" was the theme of the twentieth annual state 4-H club encampment held at New Mexico State College the week of August 28. It was attended by 230 leaders and delegates sent from their respective counties because of outstanding records. The twenty-fifth anniversary of the extension service was observed throughout the program.

District meetings for all home demonstration agents were conducted in October by Mrs. Helen D. Crandall, state agent. "Evaluation of the Home Demonstration Program in New Mexico" was the theme.

Erna Ruth Wildermuth, a former Arizona 4-H club girl and recently home demonstration agent in Chaves County, has been appointed 4-H club specialist in charge of girls' projects. Pauline Cowan has succeeded her in Chaves County.

Farm Security Administration. District meetings were held in October throughout the state. Topics concerning the writing of farm and home plans were among those discussed.

A state-wide record book contest has been organized to stimulate interest among clients in record keeping.

Vocational Home Economics Education. The annual conference for vocational home economics teachers was held at the New Mexico College of Agriculture and Mechanic Arts the third week in August under the leadership of Susan M. Burson of the U. S. Office of Education.

The state-wide home economics curriculum revision program is in its second year. Last year home economics teachers in various districts worked on experimental units in different areas of family living and made an extensive

survey in 44 home economics departments to find out the interests of girls, their home environment, their experiences and concerns. The recent state conference resulted in further development of the philosophy and evaluation of homemaking courses, and plans were made for continuation of the committee work.

NORTH DAKOTA

North Dakota Agricultural College. Marie Dirks is the new supervising instructor in home economics.

As part of their practice teaching, home economics seniors are teaching fundamentals of home economics and home relations to the boys enrolled in the Farm Folk School.

A new student teaching center has been opened at Enderlin with Margaret Swanson as supervising instructor.

An increase of 100 students in the home economics enrollment this year has necessitated two additional part-time assistants, Mrs. Veronta Wheppler Shamp in clothing and Mrs. Alice Putney Shulz in foods.

Vocational Home Economics. The thirteenth annual vocational homemaking conference from August 29 to September 1 was attended by 106 persons. Clara Flemington of Aberdeen, South Dakota, discussed "The Core Curriculum in the Aberdeen Public Schools," and Dr. Otto Beyers of the North Dakota Agricultural College led a discussion on "The Theory and Techniques of Student Counseling." Esther Latzke of Chicago was another guest speaker.

Rua Van Horn of the U. S. Office of Education visited North Dakota from October 8 to 17.

Eva Larson and Clarysse Ness, itinerant teachers of adult homemaking education, spent the first six weeks of the fall at Wahpeton, Lidgerwood, Wyndmere, and Fairmont, and at Dickinson, Hebron, New England, Belfield, and Medora, respectively.

Dr. John Darley, guidance director at the University of Minnesota, was the speaker at the meeting arranged in Bismarck by the vocational home economics service and the North Dakota Educational Association on October 27.

Extension Service. Clara Dugan resigned on July 1 as extension agent in child development and family relations and is now state supervisor of nursery schools and parent education for the Montana W.P.A. with headquarters at Butte.

M. Audrey Martin, associate county extension agent, has been transferred from Wells County to Stutsman County, and M. Jean Leake, formerly 4-H club agent at Brainerd, Minnesota, is now the associate agent in Wells County.

Byerg Benson, formerly home supervisor with the F.S.A., is the new associate county extension agent in Bottineau County.

OHIO

Ohio Home Economics Association. The Association has a new executive secretary, Mollie H. Smith, who has for some time been secretary of the department of home economics at Flora Stone Mather College, Western Reserve University.

Dorothy Ellen Jones, supervisor of home economics in the Cleveland public schools, has been appointed local chairman for the Cleveland convention of the A.H.E.A. from June 23 to 27, 1940.

Fourteen county organizations of home economists in Ohio were in existence last year, and more are being organized this fall. Members believe that these informal gatherings promote better understanding and give an opportunity for free discussion.

Baldwin-Wallace College. Mrs. Ethel Patterson of North Ridgeville, former adviser of high school home economics clubs in the state, was in charge of the dietary department of the Cleveland Camp for the Blind during the summer. Assisting her was Rita Wensink, a junior in the home economics department.

Ohio University. The new director of the School of Home Economics, Dr. Grace Steininger, took over her duties on September first.

Ida Patterson is doing full-time work in teacher training. Virginia Harger has the institutional management and quantity cookery classes and has charge of the girls in the home management house.

Western Reserve University. Cleveland College of the University is offering late afternoon and evening adult education courses in home economics. They are planned for homemakers and others with some background of

home economics work and offer up-to-date information on such subjects as nutrition for the family, buying information for the home, decorative arts in the home, and preparation for marriage. Credit is offered in the majority of classes, and it is possible to arrange a grouping to get a minor in home economics. The teaching staff is drawn from the regular Flora Stone Mather faculty.

Cincinnati. The Consumer Conference of Greater Cincinnati has outlined a very ambitious program for the year. On September 26 a program on "Know Your Coal" was arranged on which W. L. Chandler of the U. S. Department of the Interior talked on "Protection for Coal Consumers by an Independent Federal Agency," and Frank Lamping, secretary of the Smoke Abatement League, discussed "A Proposed City Ordinance." Various types of coal were exhibited. At the October meeting, "Modern Methods of Marketing" were studied with Mrs. Thomas Bernard of the Federation of Women's Clubs of New York City as the principal speaker. Weekly radio broadcasts are planned. A committee on consumer-retailer problems has been formed, consisting of five representatives from the Consumer Conference and five from the Cincinnati Retail Merchants Association. Fourteen commercial firms have become supporting members of the Conference.

OKLAHOMA

Oklahoma Home Economics Association. "Home Economics in the Present Social Order" was the theme of the annual meeting in Oklahoma City on October 13 and 14. Dr. Helen Judy Bond was guest speaker at the banquet.

Federal Study. Marie White of the U. S. Office of Education conducted a co-operative study of teacher-training institutions in the state from September 11 to October 15, and Ata Lee, the Office's agent for special groups, assisted with the study at the Colored Agricultural and Normal University at Langston.

Vocational Conference. Two hundred teachers, teacher trainers, and supervisors attended the annual state conference for vocational homemaking teachers in Stillwater from August 29 to 31. "Cooperative Activities" was the theme of the luncheon program at which the heads of many organizations and agencies spoke.

Oklahoma A. & M. College. Millie Pearson has returned to the staff after a year's study at Ohio State University. Anna K. Johnson is now on sabbatical leave for study at the University of Minnesota.

Oklahoma College for Women. Last summer Ann Buntin studied at the University of Tennessee and during the August intersession was in charge of a home management house at Oklahoma A. & M. College; Dr. Anna K. Banks was at Oklahoma A. & M. College; and Dr. Hazel Frost worked in the home economics education office in the division of vocational education of the State Department of Education preparing instructional material for teachers.

A new vocational home economics training center has been established by the College at Amber in co-operation with the State Department of Education. Mary Virginia Scott is the teacher in charge.

University of Oklahoma. A weekly schedule of forum broadcasts on family life has been planned for Mondays from November 6 to April 29 by the Oklahoma Family Life Institute. They are directed by Dr. Alice Sowers, professor of family life education at the University.

Future Homemakers Clubs. Vera Drake, who was married on June 25 to Felix Gay, has resigned as state chairman. Her successor is Nora Massengale, district supervisor of home economics education.

Some 40 friendship tours were made by Future Homemaker officers and advisers among neighboring schools the last Saturday in September and the first in October. "Home Beautification and Recreation" is the club theme for 1939–40.

PENNSYLVANIA

Pennsylvania Home Economics Association. An all-day meeting of the council was held at the College Club in Pittsburgh on September 30 with excellent attendance. The program of activities during the year and tentative plans for the annual meeting in Pittsburgh on May 3 and 4 were discussed. The Association has added to its list of executive officers this

year the president-elect, who will take office next year. Mabel Trilling is now president.

Homemakers' Section. Mrs. Fred C. Stewart, chairman, has presented an excellent report of last year's activities. The program outlined for this year will be centered on consumer problems with special attention to the grading of three types of foods: fresh fruits and vegetables, canned goods, and meats. Each type will be discussed at lectures and demonstrations with the thought of getting graded items into the local markets. The community project on which this section is centering its activities is improvement of the water supply.

State Teacher Education Committee. This committee, which had its first meeting of the year in Harrisburg on November 21 and 22, will continue its work of the past three years and center attention on research problems.

Drexel Institute of Technology. At the two-week workshop in Home and Family Life Education held during the summer session, special attention was given to the home economics curriculum for non-college pupils in Pennsylvania. The following served as members of the staff: Amanda Ebersole (director), Dr. Will French, George C. Galphin, Mrs. Anna G. Green, Dr. Galen Jones, and Ata Lee. A significant outcome of the conference was the formulation of plans for continued exchange of ideas between members of the workshop.

RHODE ISLAND

Rhode Island Home Economics Association. The October program included a luncheon meeting at the new Mount Pleasant Senior High School, after which Dr. Ralph P. Bridgman, dean of students at Brooklyn College, spoke on "Thinking, Feeling, and Will in Home Economics Education." On the following day, in conjunction with the meeting of the Rhode Island Institute of Instruction, Professor William R. Gordon lectured on "A Sociologist Looks at Home Economics Education."

Rhode Island Nutrition Association. The following speakers have been scheduled for the Association's second annual institute, which this year is to be a luncheon meeting at the Providence Plantations Club: Melva Bakke of the American Red Cross, who will discuss "The Value of a Nutrition Program in a Community"; and Dr. George R. Cowgill of the Yale School of Medicine, who will speak on "Food and Drug Laws as Related to Nutrition."

State Congress of Parents and Teachers. The Congress has arranged three units of instruction of ten lectures each for its members. Three lectures will be on sociological phases of homemaking, four on psychological aspects of child development, and three on the relation of nutrition to health from preschool through college days.

Vocational Education. Under the George-Deen program, a course in Basic Principles and Recent Developments in Nutrition will be given by Dr. Esther L. Batchelder for teachers, public health nurses, and welfare workers. Credit for it will be granted by Rhode Island State College.

Providence. The ninth year of the Providence Y.W.C.A. School of Homemaking, which operates under the Emma G. Harris Foundation, closed last June with a total enrollment of 379 and a total attendance of 3,321. The School was in session ten months, or 230 actual school days; and the 9 teachers, including the director, Eleanor F. Wells, met 42 different groups of students from 14 to 35 years old. Subjects included foods, home nursing and diet, sewing and dressmaking, and arts and crafts.

SOUTH CAROLINA

Extension Service. At the annual meeting of the Home Demonstration Agents Association in August at Clemson College, the following officers were elected: president, Margaret Fewell; vice-president, Ella Burton; secretary, Carolyn Avinger; treasurer, Winnie Belle Holden.

Farm Security Administration. In South Carolina the F.S.A. is doing much to raise standards of living among tenant farmers. Through the Tenant Purchase loans, a limited number of tenant farmers have bought land of their own. The families are selected on the basis of character, ability, and farming experience by a county committee of three farmers. Desirably located farm lands which can usually be operated successfully without employing

outside help are selected. Improved standards of living are set up among the T.P. families through the repair or construction of the dwelling and outbuildings. Rural electrification is available to a number of the borrowers. Safe water supply is conveniently placed and very often piped into kitchen and bathroom, though all dwellings do not have baths. Sanitary toilets are built where there is no sewerage.

TENNESSEE

Tennessee Home Economics Association. *Southeastern Section.* "Housing" was the theme of the section's Chattanooga meeting on October 20 and 21. Speakers included C. F. Palmer of the Georgia Housing Administration, Willie Vie Dowdy of the University of Georgia, and Blanche Halbert of the U.S.H.A.

Eastern Section. "Seeing Ourselves as Others See Us," the theme of the section's fall meeting on October 28 and 29, was discussed by a sociologist, a homemaker, an economist, a librarian, and a clothing specialist.

Western Section. December 8 and the Peabody Hotel, Memphis, are the time and place of the section's meeting this year. Mrs. Ruth T. Fox of the T.V.A. will speak on "Electricity in the Home," and Mamie Butler on "Period Lighting in America."

Carson Newman College. The home economics department reports a large enrollment of freshmen, a new classroom, and new equipment. Lillian V. Thompson is a new member of the staff.

George Peabody College for Teachers. Last summer C. Alicia Dickson attended the eighth conference of the International Federation of University Women in Stockholm and the International Congress of Home Economics in Copenhagen.

Tennessee State Teachers College, Memphis. Helen Robinson studied at the University of Tennessee last summer.

Tennessee Polytechnic Institute. Edith Holt, formerly of Georgia State College for Women, has been appointed to the institutional management staff and is serving as dietitian.

University of Tennessee. Jessie W. Harris and Ida Anders visited Guatemala last summer.

Eleanor Haile, associate professor of home management who was married in September to Leonard L. Brandrup, has been succeeded by Mildred Roberts of Mississippi State Teachers College.

Helen Hayes, formerly head of the East Illinois State Teachers College, has been appointed associate professor of child development.

Dr. Druzilla Kent is on leave of absence for field work in connection with the curriculum study conducted by the Southern Association of Schools and Colleges.

Ward Belmont Junior College. A new course, The Child, Its Origin, Development, and Care, has been added to the curriculum. It is to be taught co-operatively by Dorothy Nelson Gregg, instructor of biology, and Frances Swanson McDonough, instructor of foods and nutrition. Sound films and outside speakers will be used.

Knox County. Ten Knox County schools were represented at the Knox Club Camp held the last week of May at Gatlinburg. Knox County home economics and agriculture teachers are to hold joint monthly meetings to formulate plans for another year.

Sullivan County. Four new vocational home economics teachers have been employed: Edythe Webb, Bess Dougherty, Gladys Addington, and Elizabeth Culbertson. Five joint meetings of home economics and agriculture teachers were held in east Tennessee in September.

TEXAS

Extension Service. "Home Gardens" are a part of the 1940 farm program, and it is recommended that each garden include at least half an acre and devote at least half of the space to ten or more varieties of vegetables.

At the annual meeting of the Texas Home Demonstration Association in Lubbock in September, 397 delegates from 2,084 clubs revised the constitution and bylaws.

Farm Security Administration. Improvement in health is the objective of the 1940 F.S.A. program because of its effect on personal and economic well-being. The attempt to produce and conserve balanced food supplies has changed both attitude and point of view

of many families. Malaria, typhoid, and hookworm will be attacked by draining home sites, screening houses, providing approved water supplies, and building sanitary toilets, and pellagra through further study of balanced food supplies produced on the farm. The 25 County Medical Bureaus of the state serve 14,335 F.S.A. families.

North Texas State College. Recent campus visitors have included Dean Margaret Justin of Kansas State College and Dr. Eleanor Johnson and Dr. Mildred Jensen of the University of Arizona.

Sam Houston State College. Carolyn Newsom has been appointed supervisory homemaking teacher at the Senior High School and Sue Belle Driskill, supervisory teacher at the Junior High School.

Lilla Clark has accepted a position at the West Texas State College.

Texas Technological College. A second annex to the home economics building will contain two classrooms, a home management laboratory, a periodical room, and an office.

A course in home economics journalism is being offered this semester.

Lila Allred has been appointed instructor in clothing and textiles.

Ilse Wolf has replaced Doris Buchanon as itinerant teacher trainer in this district.

UTAH

Utah Home Economics Association. "Evaluation of Our Services to Individuals and Our Communities" was the theme of the annual summer conference for teachers and other workers in home economics which the Association, in co-operation with the homemaking division of the State Department of Education, sponsored at Pinecrest Inn in Emigration Canyon from August 22 to 25. About 100 attended. Mrs. Elizabeth Riner, director of home economics in Omaha and the guest leader, brought a great deal of practical help and inspiration to those attending. The majority present were teachers, but all home economics services in the state were represented.

The program of the Association's annual meeting in Salt Lake City on October 13 included: a report of the San Antonio meeting of the A.H.E.A. by Mrs. Rose H. Widtsoe of the University of Utah; a discussion of "How Teachers May Improve Their Work" by Florence Thompson of the Utah State Agricultural College; an explanation of the textile exhibit from the Textiles Education Bureau of New York City by Mrs. Nell Strowig, supervisor of home economics in Salt Lake City; and a talk on quality and selection of furs by a representative of a Salt Lake City shop. During the day there were exhibits of table decorations, linen, glassware, window trimming, fashions, meat cookery, and electric appliances for use in classrooms.

New officers were elected and new board members appointed.

VERMONT

Vermont Home Economics Association. This year's officers are: president, Helen Rockwood, Poultney; first vice-president, Lucy Rich; second vice-president, Frances French; secretary-treasurer, Dorothy Smith, Montpelier.

Alida Fairbanks, who has resumed her duties as state supervisor of home economics education after acting for six months as temporary federal agent for the North Atlantic region in the U. S. Office of Education, spoke at the annual meeting of the Association on October 13 on "Trends in Home Economics Education."

In the curriculum study that they have been conducting for the past three years, the home economics teachers of the state have made a careful study of home and community needs and through group discussions have interpreted these findings as they affect the curriculum. Last year, basic guides for curriculum construction were set up and special units of work were developed. Lucy Rich, home economics teacher at St. Albans, was granted a five-month leave of absence to work with the group of teachers and assemble the units into a course of study. It is expected that the latter will be available in mimeographed form this year.

University of Vermont. Lois Harrington, the University's critic teacher at Essex Junction, has gone to the University of New Hampshire as instructor of foods and home management. Annah Thomas of Springfield, Vermont, has succeeded her.

Extension Service. Marjorie Luce, state home demonstration leader, has returned after six months of study at Columbia.

Edna Sommerfeld, clothing specialist, is studying at Columbia University this semester.

Martha Leighton, assistant 4-H club leader for the past twelve years, has resigned to accept a similar position in Pennsylvania.

Vermont Experiment Station. Marianne Muse studied during the summer quarter under Dr. Hazel Kyrk at the University of Chicago.

Margaret Tiffany, assistant in home economics research, has accepted a similar position at Iowa State College. She has been succeeded by Virginia Britton.

VIRGINIA

Madison College. Pearl Powers Moody, for some years head of the home economics department, has decided to resign as head but will continue in the less exacting capacity of professor of foods and director of the home management residence. To Mrs. Moody belongs a large part of the credit for the enormous growth of the department. Bernice Reaney Varner, formerly dean of women and associate professor of institution management, is now head of the department.

Martha Seig, formerly a teacher of vocational homemaking in the Stuarts Draft High School, has joined the staff as critic teacher in the student teaching center at Bridgewater.

The College was hostess to the State Conference of Vocational Home Economics Teachers from August 21 to 26. Under the leadership of Martha Creighton, state supervisor of home economics, and her assistants, 250 teachers spent a very profitable week together.

Richmond. The Richmond branch of the Virginia Home Economics Association, with Marion Lawrence as president, closed its third year with a marked increase in membership. At each of the five general meetings an outstanding speaker was featured.

Public Schools. The project of greatest interest in the Richmond public schools during 1938–39 was the development of the new Mattie L. Walker vocational high school for negroes. All pupils attending it will be required to enroll in one or more vocational classes. Before deciding on the vocation they want to specialize in, the pupils rotate through the various classes for the first year or two. They will, of course, be required to carry the core subjects compulsory in all accredited high schools. Classes in many of the following subjects are in operation at present, and it is hoped that all can be offered later: dressmaking; tailoring; cleaning, pressing, and care of clothing; food preparation and serving; domestic service; home nursing; child care; laundering; beauty culture; barbering; hotel and restaurant cooking; janitorial service; gardening and care of grounds; shoe repairing; and building maintenance. The school itself will be used as a laboratory for all of these trades. Supervision of these classes will be under the departments of industrial education and home economics.

WYOMING

Wyoming Home Economics Association. At the business session held on August 23 in Laramie during the State Vocational Home Economics Teachers' Conference, Emma Joe Thiessen was elected president.

State Department of Education. The annual State Vocational Home Economics Teachers' Conference was held in Laramie from August 21 to 25. Rose Wanek, assistant state supervisor of home economics in Nebraska, led one day's study of home project programs.

Pauline H. Drollinger, state supervisor of homemaking education, has returned from two months' leave of absence for temporary work in the U. S. Office of Education.

Extension Service. A State Home Demonstration Council, embracing all county home demonstration councils of Wyoming, was organized at Casper on July 29. Mary Ellen Brown, state home demonstration leader of Nebraska, was the main speaker.

Marjorie Nye assumed her duties as home demonstration agent-at-large on September 1.

Mae Baird, home demonstration agent in Sheridan County, attended the Extension Service School at Nela Park, Cleveland, Ohio, during the first week in August.

Evangeline Jennings attended the three weeks' nutrition school at Massachusetts Institute of Technology during September.

OUR CONTRIBUTORS

Mrs. Betty M. Watts has been an instructor in home economics and junior biochemist in the Agricultural Experiment Station at the University of California in Berkeley since 1936. She holds a Ph.D. from Washington University in St. Louis, and before going to California did research on various problems in physiology and colloid chemistry at the Washington University Medical School.

Elizabeth Guilford, a former chairman of what is now the social welfare and public health department of the A.H.E.A., is in charge of the home economics bureau of the Metropolitan Life Insurance Company.

Dr. Agnes Fay Morgan is head of the division of home economics at the University of California at Berkeley; **Wylle B. McNeal** is chief of the division of home economics at the University of Minnesota; **Lita Bane** is head of the department of home economics at the University of Illinois, her Alma Mater.

Anna G. Douglas, a graduate of Duke University and the Prince School of Store Service Education at Simmons College, has been training director for the E. M. Scarbrough & Sons department store in Austin, Texas, since 1936.

Alice L. Edwards is too well known to home economists the country over, first as executive secretary of the American Home Economics Association and more recently for her work in the interests of the consumer, to need further introduction.

Mrs. Henrietta Ripperger conducts the "Tips to the Teens" section in *Good Housekeeping.* She prepared the article in this issue for the publicity kit used by the National Tuberculosis Association in connection with the annual sale of Christmas seals.

Ella M. Eck is chief dietitian at the University of Chicago clinics and president of the Illinois Dietetic Association.

Eva G. Donelson has been assistant professor of nutrition at the University of Minnesota since she received her Ph.D. at the University of Chicago in 1934. **Helen M. Peterson** wrote her article in this issue after she had completed the apprentice work she did in a public utility company as part of a senior home economics foods in business course at the University of Minnesota.

Hsi Hsuan Yü, a 1934 graduate of Yenching University in Peiping, China, had had three years of experience as a dietitian in the Peiping Union Medical College Hospital before she came to Oregon State College, where she obtained her M.S. degree in 1939. Now she is en route back to China to again be on the staff of the Peiping Union Hospital. **Dr. Margaret L. Fincke** has been associate professor of foods and nutrition at Oregon State College since she took her Ph.D. at Columbia in 1935.

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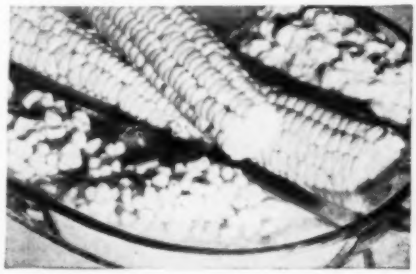

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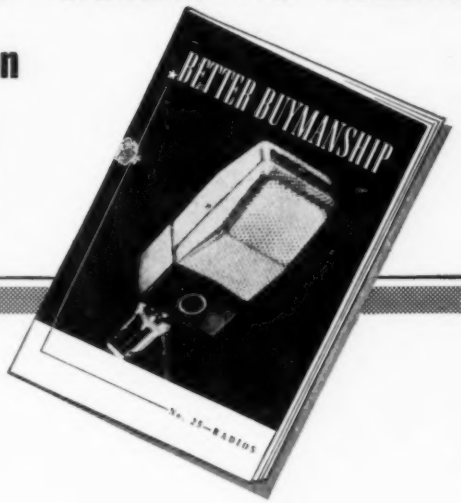

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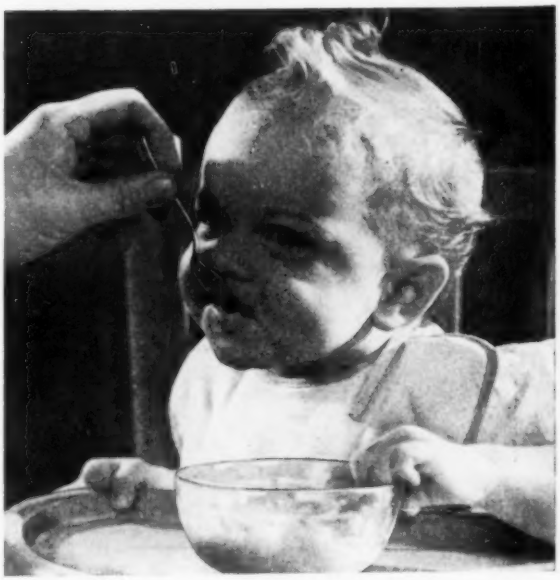

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